amateur radio

Vol. 34, No. 10
OCTOBER
1966

25c

Registered at G.P.O., Melbourne, for transmission by post as a periodical

NEW VALVES

1A3	50c	5U4GB	$1.45	6CW4	$3.00	7L7	75c	866	$2.50
1A5	50c	5V4G	$1.75	6F8	50c	7N7	75c	954	50c
1A7GT	$2.60	5Y3	$1.38	6G6	75c	7W7	50c	955	50c
1C7	50c	5Y4	75c	6G8G	$2.60	12A6	50c	956	50c
1D4	75c	5Z3	$1.75	6H6 Metal	50c	12AH7	50c	958A	50c
1D8	75c	6A3	75c	6J5GT	$1.00	12AT7	75c	1616	$1.50
1F5	$1.00	6A6	75c	6J6	$1.00	12AU7	$1.50	1625	50c
1H5	75c	6AB7	$1.00	6K6	$1.00	12AU7A	$1.50	1626	50c
1K5	50c	6AC7	75c	6K7	50c	12AV6	75c	1629	50c
1K7	50c	6AG5	50c	6K8GT	$1.25	12BE6	75c	5636	75c
1L4	50c	6AG7	$1.25	6K8 Metal	$2.00	12C8	50c	5763	$2.30
1L5	$1.00	6AJ5	75c	6L7	50c	12J5	50c	6021	$1.00
1LN5	50c	6AK5	$1.50	6N7	50c	12SA7GT	$1.00	9004	50c
1M4	50c	6AL5	$1.40	6R7	75c	12SC7	50c	EA50	40c
1M5	50c	6AM5	$1.50	6S5	75c	12SG7	75c	ECC35	$2.00
1P5	50c	6AM6	$1.00	6SA7	75c	12SK7	50c	ECH33	$2.00
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1S5	$1.60	6AU6	$1.45	6SH7	50c	16A5	$1.70	EY91	50c
1T4	$1.00	6AU8A	$2.40	6SJ7	$1.25	16A8	$2.10	KT66	$3.00
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2A7	75c	6BE6	$1.55	6SQ7GT	$2.60	19	50c	UL41	$1.00
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2X2	50c	6BQ5	$1.70	6U7	75c	57	50c	VR102	50c
3A4	$2.20	6BR5	$1.45	6U8	$1.70	58	50c	VR135	50c
3A5	$1.00	6BX6	$1.45	6V4	$1.14	80	$1.70	VR136	50c
3Q5	$1.00	6BY7	$1.45	6V6GT	$1.75	717A	75c	VR137	50c
3S4	$1.00	6BZ6	$1.60	6X4	$1.00	807	$3.75	VR150	$1.25
3V4	$1.50	6C6	50c	6X5	$1.45	808	$1.00	VT78 (6D6)	50c
5AR4	$2.60	6C8	$1.00	7A8	40c	809	$2.00	VT127	50c
5AS4	$1.45	6CG7	$1.55	7C5	50c	830B	$1.50	VT501	75c
5R4GY	$3.75	6CH6	$2.35	7C7	50c	832A	$6.00		
5T4	$1.75	6CM5	$2.25	7E6	50c	837	$2.00	VU39A	50c

DRIVER AND OUTPUT TRANSFORMERS

Transistor type RL8, Driver Transformer, 3000 to 1330 c.t. Transistor type JK8 Output Transformer, 300 c.t. to 15. Physical size: height 1⅜ in., depth 1⅝ in., width 1⅜ in. 10/- ($1) each, or 17/6 ($1.75) per pair.

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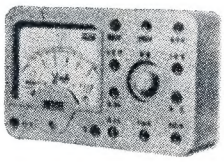
150 ft.	on 3 inch reel,	Acetate	60c
225 ft.	,, 3 ,, ,,	,,	75c
300 ft.	,, 3 ,, ,,	Tensilised Mylar	$1.25
500 ft.	,, 3 ,, ,,	,, ,,	$1.65
600 ft.	,, 3¼ ,, ,,	,, ,,	$1.80
600 ft.	,, 5 ,, ,,	Acetate	$1.75
900 ft.	,, 5 ,, ,,	,,	$1.95
900 ft.	,, 5 ,, ,,	Mylar	$2.25
1200 ft.	,, 5 ,, ,,	,,	$3.50
1800 ft.	,, 5 ,, ,,	Tensilised Mylar	$5.25
850 ft.	,, 5¾ ,, ,,	Acetate	$1.75
1200 ft.	,, 5¾ ,, ,,	Mylar	$3.50
1800 ft.	,, 5¾ ,, ,,	Tensilised Mylar	$5.25
2400 ft.	,, 5¾ ,, ,,	,, ,,	$7.00
1200 ft.	,, 7 ,, ,,	Acetate	$2.75
1200 ft.	,, 7 ,, ,,	Mylar	$3.25
1800 ft.	,, 7 ,, ,,	Acetate	$3.75
1800 ft.	,, 7 ,, ,,	Mylar	$4.50
2400 ft.	,, 7 ,, ,,	,,	$5.25
3000 ft.	,, 7 ,, ,,	Tensilised Mylar	$7.50
3600 ft.	,, 7 ,, ,,	,, ,,	$9.25

Empty Tape Reels		Plastic Storage Case and Empty Reel	
3 inch	25c	5 inch	80c
3¼ ,,	35c	7 ,,	$1.20
4 ,,	35c		
5 ,,	40c	**Leader Tape, White**	
5¾ ,,	55c	100 ft. reel	$1.25
7 ,,	50c		

TECH MULTIMETER



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Ohms range: 0-100,000 ohms.

Size: 3¾ x 2½ x 1¼ inches.

Complete with leads.

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Oscillator Coil, 360 microhenry	8/6	85c
Pot., switched with knob, 5K ohms	8/6	85c
6 Transistors and 1 Diode (comprising: 2-2N408/OC74N, 3-2N410/OC45, 1-2N406/OC71, 1-OA90)	82/6	$8.25
Three i.f. Transformers, 455 kc.	30/-	$3.00
Complete set resistors and condensers (32)	42/6	$4.25
Printed Circuit Board	10/-	$1.00
Cabinet, complete with earphone jack, earphone and carrying cases	25/-	$2.50

ROTARY TRANSFORMER MOTORS

Type X21010, new. Input 19 volts, output 370 volts at 70 mA. Size 6½ in. long, diam. 2¼ in.

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TRANSISTOR RECEIVER KITS

Kits of parts for the Audio and B.f.o. Sections of the 80 Mx Transistor Receiver described in August "A.R." are now available. Audio Kit $15.50, B.f.o. Kit $15.50. Kits will be available for subsequent sections as they are published.

TRANSISTORS AND DIODES

AC125	9/6	95c	OC169	19/6	$1.95
AC126	9/6	95c	OC170/AF115N		
AC127	10/6	$1.05		10/-	$1
AC128	10/-	$1	OC171/AF114N		
AF114N/OC171				10/-	$1
	10/-	$1	2N217	9/6	95c
AF115N/OC170			2N217S	9/6	95c
	10/-	$1	2N270	13/6	$1.35
AF116N	9/6	95c	2N370	19/-	$1.90
AF117N	9/6	95c	2N372	19/-	$1.90
AF118	22/-	$2.20	BY100/OA214		
BC107	11/-	$1.10		16/-	$1.60
BC108	10/-	$1	OA79	4/-	40c
BC109	14/-	$1.40	OA80	3/-	30c
OC26	26/-	$2.60	OA81	3/-	30c
OC35/AT1138A			OA90	3/3	32c
	35/-	$3.50	OA91	3/3	32c
OC44N	11/-	$1.10	OA95	3/3	32c
OC45N	11/-	$1.10	OA200	7/6	75c
OC70	12/-	$1.20	OA210, 1N1763, 1N3194		
OC71/2N215			HR25	8/6	85c
	7/6 or 3 for £1		OA211, S10AR2		
	75c or 3 for $2			16/-	$1.60
OC72	13/6	$1.35	1N3491 50 p.i.v. 18 a.	9/6	95c
OC74N	9/6	95c			
OC75	13/6	$1.35			

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ROTARY WAFER SWITCH

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"AMATEUR RADIO"

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★

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FEDERAL COMMENT

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9th JAMBOREE-ON-THE-AIR

On the week-end of 22nd and 23rd October Amateur Transmitting Societies all over the world will be co-operating with the Boy Scouts World Bureau for the 9th Jamboree-on-the-Air. Since the inauguration of this event the Wireless Institute of Australia supported it, calling on all Amateurs interested in the activities of the youth of our nation to "open their shack doors."

The entire electronic industry—television, broadcasting, manufacturing, servicing and communications generally—are well aware of the growing need for skilled electronic people if Australia, with its increasing role in international affairs, is to keep technically abreast of the northern hemisphere.

The expedient way is to engender early interest by young people and like all other Amateur activities, the Jamboree-on-the-Air is an appropriate means. On the occasion of this event the Wireless Institute of Australia again asks all Amateurs to interest themselves in local Scout organisations and make arrangements for Scout groups to visit the shack while local, interstate and overseas contacts are in progress. This will not only add to the knowledge of Scouts as signallers but will also ignite that little flame in many to enquire further into the art of radio communicaitons and electronics in general.

And with the Scouts in your shack you have an admirable opportunity to discuss with them the value of the W.I.A. sponsored Youth Radio Scheme whereby the boys can start off on the right foot to understand radio with a sound basic radio course. If you are unaware of the details of Y.R.C. training, then contact the W.I.A. in your State and you will find the Institute only too willing to assist you with all the information you want. Don't forget the date! October 22 and 23! Your co-operation will assist Australian youth and give YOU a lot of pleasure.

G. MAXWELL HULL, VK3ZS, Federal President, W.I.A.

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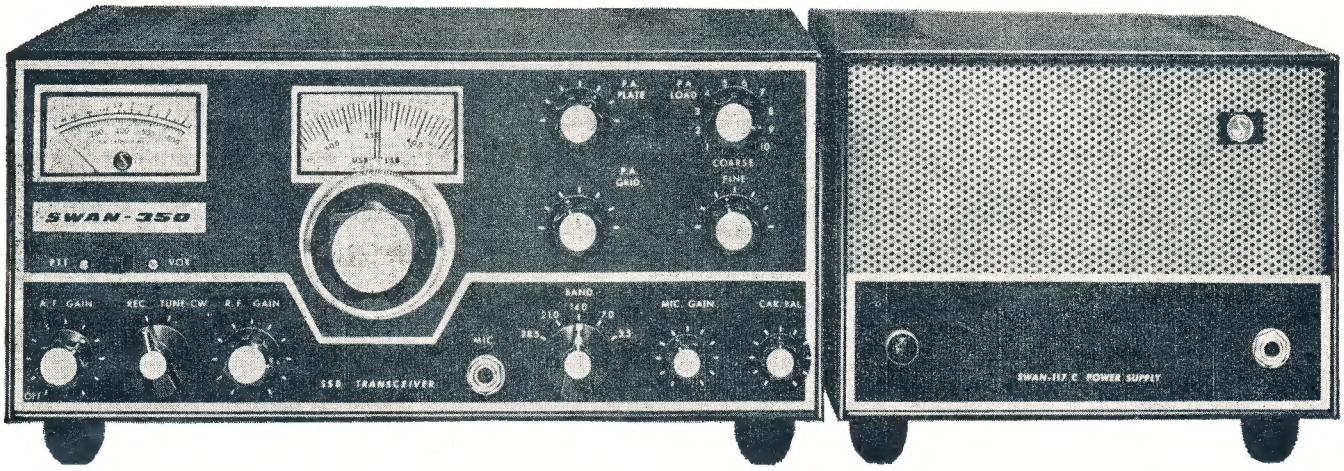
STILL AUSTRALIA'S MOST POPULAR S.S.B. EQUIPMENT

SWAN



Swan SW350 **Latest Model Transceiver** only	£250	0	0	$500.00
Swan SW350 **Latest Model Transceiver.** Fitted with opposite sideband and 100 kc. cal. (Aust.)	£264	0	0	$528.00
Swan SW350 **Latest Model Transceiver.** Fitted with opposite sideband and 100 kc. cal. (Aust.), plus de luxe 240v. a.c. power supply with speaker and all cables and plugs in matching cabinet	£300	0	0	$600.00
Swan SW400 Latest Model De Luxe Transceiver only	£275	0	0	$550.00
Swan SW406 Transistorised VFO, five-band	£50	0	0	$100.00
Swan SW420 Transistorised VFO, 20-band full coverage	£84	0	0	$168.00
Swan SW410 Transistorised VFO, five-band full coverage	£80	0	0	$160.00
Swan VX1 five-Transistor VOX Unit	£25	0	0	$50.00
Swan SW22 VFO Adaptor Unit (split channel)	£20	0	0	$40.00
Swan SW260C de luxe 240v. a.c. Power Supply w. speaker, in matching cabinet	£40	0	0	$80.00
240v. a.c. Basic Power Supply, without cabinet	£35	0	0	$70.00
Swan SS2 Opposite Sideband Kit (genuine)	£17	0	0	$34.00
Swan 100 Kc. Xtal Calibrator (genuine)	£17	0	0	$34.00
Swan WFS500 12v. d.c. 500 watt Power Supply	£65	18	0	$131.80
Opposite Sideband Kit (Aust.)	£3	15	0	$7.50
100 Kc. Xtal Calibrator Kit (Aust.)	£11	16	0	$23.60
P.T.T. Ceramic Microphone with plug	£5	18	0	$11.80

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PORTABLE 240V. A.C. POWER SUPPLY

B. A. WHITE, VK5YB*

THE problem of producing the much desired 240v. a.c. for the portable station can be overcome with the aid of a small 4-cycle petrol engine and a ¼ h.p. single phase capacitor start induction motor.

The equipment detailed above could be quite expensive if bought via the normal channels, however there are many disposals sources releasing ¼ h.p. motors for as low as $2 and the job of reconditioning an old washing machine petrol engine is not beyond the average ability or pocket. It was thus that I economically secured my power plant components.

Be sure that the electric motor has good bearings, and that the "run" winding is OK. The "start" winding and capacitor have no effect in this reverse operation, likewise the starter switch mechanism on the rotor. Check to ensure that the motor is designed to run at 1,445 r.p.m. (or thereabouts) when on the 40-50 c.p.s. supply as this also determines the speed at which the engine must drive the motor to develop 50 c.p.s. as a generator. Higher speed types do turn up and will do the same job provided they are driven at the correct speed.

The petrol engine needs to be in good condition to maintain a constant speed to ensure even cyclage of the generator. I disconnected the "blow-type" governor and fitted a hand throttle to overcome governor surge and consequent variation of cyclage.

Having constructed a suitable base plate from scrap timber, a belt drive was fitted using a car fan belt and two random pulleys approx. 2½" diam. each. The engine seemed to develop suitable power and stability at 1,500 r.p.m., but this may need experimentation with various engines—adjusting the pulley ratios to finally rotate the "generator" at approximately 1,500 r.p.m.

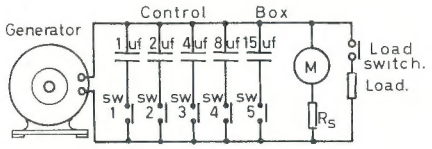


FIG. 1. GENERATOR CONTROL CIRCUIT.

The "generator" has to receive some initial excitation whilst rotating and this may be done by the use of a capacitor block and switches to vary the capacity across the output. A cheap moving iron 0-300 volt meter was set in the output stage to monitor the excitation process. Disposals oil-filled capacitors were used in the set up, but don't forget to parallel each one with a 250K bleeder or else they could give you quite a shock when left switched off.

To excite the generator, the 15 μF. SW5 is closed and starting with SW1 the rest are closed until the meter shows a sudden kick. This occurs only if the particular "generator" has sufficient residual magnetism to produce a low level a.c. voltage to charge the capacitor bank. No load must be applied during this excitation process or it will effectively dampen the small charges produced by the residual properties of the "generator". Once excitation is achieved the voltage will possibly be too high. Reduce the excitation capacity by switching out the lower capacities until about 250-260 volts is obtained. Switch in the load and more capacity if the load downs the voltage too much. Some generators have to receive a d.c. flash to excite them.

The cyclage may be checked with the aid of the synchronous record player connected to the home-brew a.c. source, a strobroscopic disc, used to check the gramo speeds, and a globe connected to the mains supply. Increase or decrease the engine speed until reasonable synchronisation is obtained. Alternatively, the pocket rev. counter is all that was available on the farm and served satisfactorily.

There are two disadvantages with this system:

(a) Voltage variation with a change of load,

(b) Slight beat due to slip or natural magnetic resonances against the exciting capacity.

The first (a) can be overcome by the use of dummy loads or the use of a common power supply for the transmitter and receiver used in portable work, and thus refrain from change of load.

There is little to be done with (b) as it depends on the design of the motor particularly in relation to the material of which it is made. This effect is noticed by slight fluctuation in a low powered filament lamp and possibly slight tonation of a b.f.o. against a resolved s.s.b. signal.

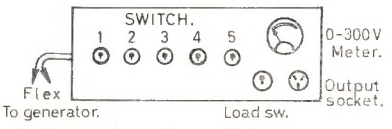


FIG. 2. CONTROL BOX LAYOUT.

This power supply has delivered up to 250 watts and has been used for t.v. on the farm, powering a 100w. soldering iron, lighting and always to operate the receiver on the rig here, as well as the radiogram.

The direction of rotation of the "generator" is immaterial and a fuse system is unnecessary as overload cancels excitation and the whole circuit neutralises despite the continued rotation.

Higher h.p. motors are equally as effective, but appear to require larger capacity for excitation—they, too, would be capable of more output with a larger petrol engine.

The two-stroke motor was rejected due to continued variation of revs., noise and difficulties of handling, especially starting. The only suppression required for Amateur use was the plug suppressor on the 4-cycle engine. The generator is purely inductive and no variable connections are used to necessitate brush suppression.

The credit of this mode of power should be handed to Rollo VK6BO, who has been using this system on his portable gear and caravan for some time. I merely copied his idea and experimented to further the application. ●

* P.O. Box 228, Keith, South Aus.

W.I.A. D.X.C.C.

Listed below are the highest twelve members in each section. Position in the list is determined by the first number shown. The first number represents the participant's total countries less any credits given for deleted countries. The second number shown represents the total D.X.C.C. credits given, including deleted countries. Where totals are the same, listings will be alphabetical by call sign.

Credits for new members and those whose totals have been amended are also shown.

PHONE

VK3AHO	309/321	VK4HR	247/263
VK5MS	309/330	VK2JZ	246/261
VK5AB	298/312	VK3TL	237/241
VK6MK	293/310	VK2ADE	223/237
VK6RU	292/315	VK2APK	217/220
VK4FJ	273/290	VK2AAK	215/219

New Member:
VK2MR 100/100

C.W.

VK3KB	315/338	VK2EO	272/293
VK2ADE	291/313	VK3AHQ	267/279
VK3CX	290/311	VK3NC	266/286
VK2QL	288/308	VK3ARX	261/269
VK4FJ	284/306	VK6RU	250/271
VK2AGH	275/288	VK3XB	243/256

New Member:
VK2PQ 104/105

Amendments:

VK2APK	239/246	VK3AX	146/154
VK3TL	232/235		

OPEN

VK2ADE	305/329	VK2VN	275/290
VK2AGH	303/321	VK3ARX	270/278
VK6RU	298/321	VK4HR	270/292
VK6MK	265/312	VK3NC	267/287
VK4FJ	291/313	VK3TL	256/260
VK2ACX	276/300	VK2APK	255/263

SERIES PHASED ARRAY FOR 14 Mc.

WAL SALMON, VK2SA*

WITH the gradual return to more favourable propagation conditions more Amateurs are utilising the frequencies of 14 Mc. and above. Whilst many possess excellent transmitting and receiving equipment, simple wire dipoles have been, in the main, the only effective antennae for most Hams living in suburban areas.

However, on reading the mail on most of the frequencies, discussions on antennae seem to be increasing in proportion to the rate of increase in sunspot activity. The problem of the acquisition of an efficient antenna can be solved by the installation of high towers and the construction of Quads or Yagis, or dipping deep into your pocket and letting someone else do the job for you.

It would appear that this antenna has not been successfully adopted for Amateur work, due to feed and phasing difficulties and reference to various articles on the subject has amplified this thought.

The basic theory of an antenna of this type originates in the fact that parallel elements spaced one-quarter wavelength apart and fed with equal currents 90 degrees out of phase will have a directional pattern. The maximum radiation is in the direction from the element in which the current leads to the element in which the current lags. In the opposite direction the fields from the elements cancel.

Thought was then given to the construction of an experimental Series Phased Array, and in assessing the problem of suitably feeding the elements, consideration was given to incorporating the Delta match system. It is well known that the impedance presented between any two points symmetrically placed with respect to the centre of a half wave antenna will depend on the distance between the points. The greater the separation, the higher the impedance. With this theory in mind it was thought that a centre-loaded tapped coil resonated element would be suitable.

Three half wave elements were then constructed, the loading coil (see photo) consisting of 12 turns of 14 gauge enamel wound on plastic conduit 1½ in. in diameter. The total length of each half wave element when resonated at 14.1 Mc. was 20 ft. 6 inches. It will be immediately apparent that this is a very convenient length to handle either as a vertical or horizontal radiator. The first experimental antenna was fed with 600 ohm open wire line from the transmitter through a "Z" match unit, the feeders being tapped directly across the centre loading coil of the first element. The interconnecting phasing stubs between the elements consisted of 75 ohm tapped across three turns of the element loading coils. In order to save space and time I will merely add that the s.w.r. went haywire and the antenna was a flop.

The co-ax. phasing stubs were then removed and 600 ohm open wire stubs tapped directly across the coils were

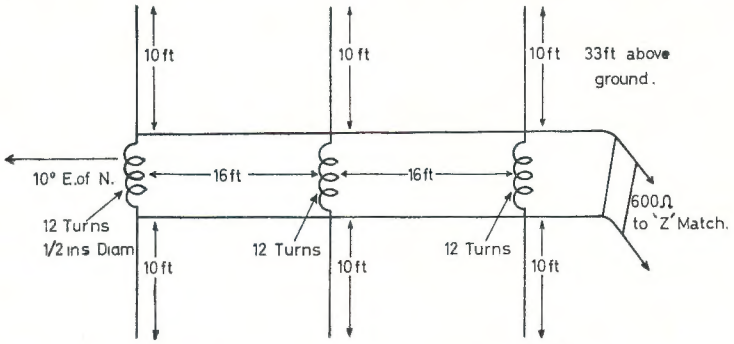


Fig. 1.—14 Mc. Array. (Coil diam. should read 1½ inches.)

The writer has given considerable thought to the problem and has acquired the habit of collecting data over the years on antennae and antenna heights, and a clear picture has emerged. It would seem that the best DX signals have their origin in an antenna height of a least 60 to 70 feet and one is amazed at the information obtained from some of our American friends. Yagi antennae at 70 or 80 feet are commonplace. One Amateur was using a 6 element Yagi at 100 feet, another a four-element Quad at 70 feet. All this adds up to the fact that if you have a fat purse, you can put out a fat signal.

With the idea of trying to get something for nothing, the writer embarked on a trial and error scheme of testing various types of vertical wire antennae, some with directors or reflectors, over the past 12 months. Some showed great promise on W and European DX signals but could never come close to matching the Yagi and Quad.

Quite recently the writer came across an article by Colin A. Mackenzie, VK3ACM, entitled the "Series Phased Array" (reference "Amateur Radio," February, 1959). As the article states, the antenna was known as the Marconi-Franklin Series Phased Aerial and is specifically designed for end-fire propagation.

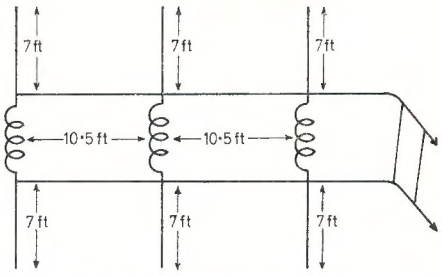


Fig. 2.—Suggestion for 21 Mc.

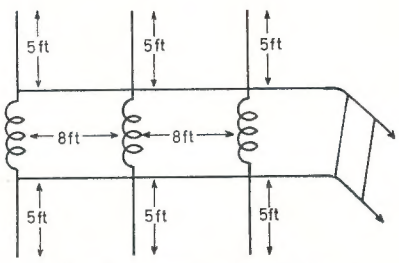
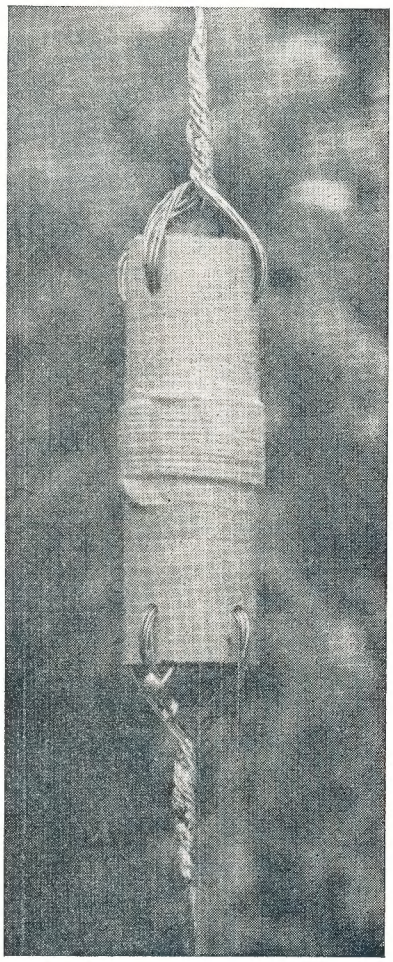


Fig. 3.—Suggestion for 28 Mc.



* 77 Flora St., Kirrawee, N.S.W.

substituted, and we were in business with the antenna firing about 10 degrees east of North, this being the most suitable direction due to the lay-out of masts at this location. The s.w.r. was 1.3 to 1 at 14,250 Mc.

Seven-stranded copper earth wire is used in the construction of the elements which are spaced 16 feet apart, the total length of the array being 32 feet. The antenna hangs in a semi-vertical plane from a horizontal wire broken with insulators about 33 feet high. You have no doubt been wondering about results. In the brief period the antenna has been in operation reports have been received from Canada, United States and Alaska ranging from S5 to S9 plus 40 db. and in its evaluation I can only comment that I am quite satisfied that the antenna will match in strength many antennae of a more complicated nature. I might mention that the antenna was constructed and erected in about four hours.

One unknown question raised in VK3ACM's article centres around the detuning effects when the antenna is pieced together and raised. Tests were carried out at VK2SA with two of the centre-loaded dipoles, both being separately resonated at 14 Mc. When spaced from 2 inches to 2 feet the dipoles resonated at approximately 15 Mc. When spaced at eight feet to resonant frequency was 14.15 Mc.

I can see many angles for development, such as variation in element length, associated with centre-loading coil size and an increase in the number of elements to provide more gain in the favoured direction and the adoption of the antenna to higher frequencies. In this connection reference might be made to Figs. 2 and 3 for 21 Mc. and 28 Mc. antennae. The only unknown data is the centre-loading coil size which can be easily ascertained by the use of the station g.d.o. before the elements are connected to the feed line.

However, the proof of the pudding is in the eating and I conclude this article by referring to the original story with particular emphasis on the concluding words "so who is willing to carry on from here."

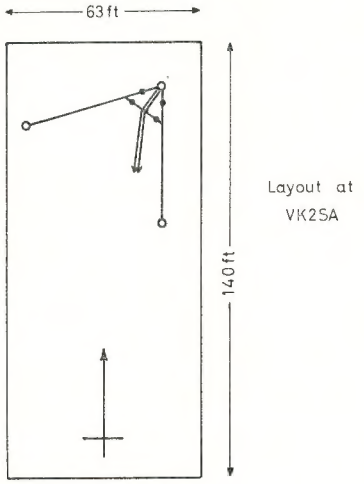


Fig. 4.

LATER VERSION

Recently I have put something up in the air which is really fantastic. Figs. 4 and 5 give full details of the array, the forward dipole being bent at an angle of about 80 deg. and the reflector dipole is almost straight. Fifty-nine plus reports from the U.S. and Alaska are pouring in.

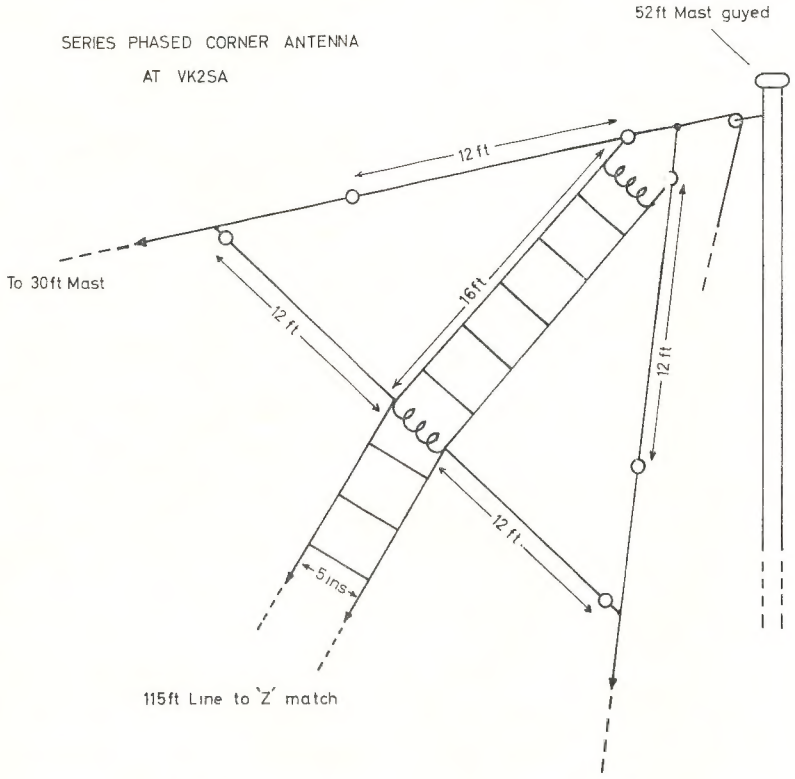


Fig. 5.

The dipole coils were wound on ½ in. plastic conduit and consist of 17 turns each, the turns being pushed in or out so that the dipole will resonate at 14 Mc. before connection to the feeders. The coils were then doped and wound with plastic tape.

The antenna is fed with 115 feet of open wire line spaced 5 inches, the spreaders being used, "Biro" pencils. The s.w.r. is 1.4 to 1 and the coupling device to the final is the English "Z" match coupler.

At present I am working on another "corner" antenna for Europe.

☆

Technical Correspondence—

Transistor Amplifier Design

Editor "A.R.," Dear Sir,

I would like to draw your attention to an article by Mr. R. L. Harrison in the September issue of "A.R." There are several points that are wrong in the article, as well as several that I feel could be very misleading to the people who are likely to use the article. As I feel that mine will not be the only letter to condemn the correctness of the article. I will not give a large amount of detail, but merely point out parts that are wrong. They are:—

1. The choice for V_{CC} (one should consult the manufacturer's data for maximum ratings).

2. The choice of I_C (some silicon transistors have their highest L_{FE} just below 2 mA.); silicon transistors can usually be operated with a very low I_C.

3. The equation $R_C = V_{CE} \div I_C$ does not follow from the single fact that $V_{CE} = V_{CC} \div 3$, (it only follows if $V_{RE} = V_{CC} \div 3$ also).

4. The equation—

$$C_E = \frac{(\beta_o + 1) \times 10^6}{2 \pi f_1 \left(R_{in} + \frac{R_B R_C}{R_B + R_C}\right)}$$

is wrong. Its departure from the true equation is more, I feel, than could be attributed to a printer's error.

5. The assumption that R_{IN} of the following stage = 500 ohms for germanium, or 1000 ohms for silicon, transistors, is again quite wrong, especially from what Mr. Harrison has said about the choice of I_C.

6. The statement that the input impedance of an OC71 will be close to 300 ohms is, as for point 5, quite wrong.

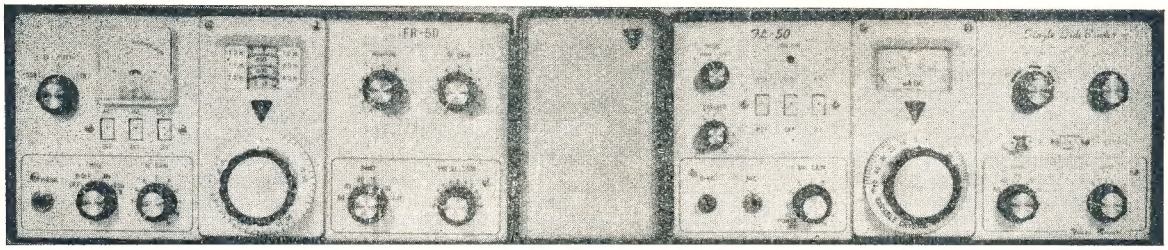
7. Mr. Harrison's philosophy for designing the lower cut-off frequency f_1 is I feel very misleading and deserves clarification.

Finally. I do agree with Mr. Harrison on one point, he does appear to be confused about transistor amplifier design.

I hope these points may be of some use in assisting Mr. Harrison to rethink his subject. If clarifications on any of the points I have made is needed, please contact me.

—W. Metzenthen, VK3ZOF.

YAESU F-SERIES S.S.B. EQUIPMENT



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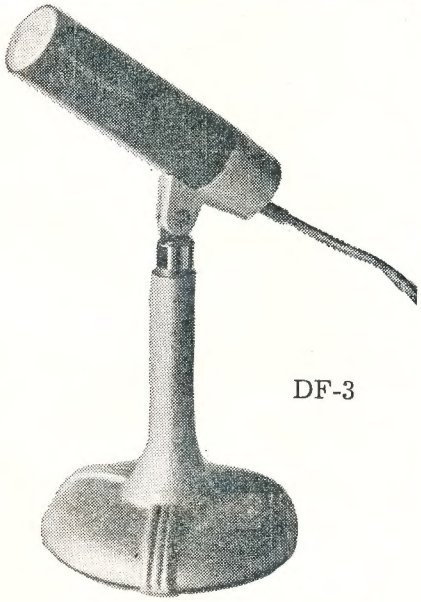

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TRANSISTOR AMPLIFIER DESIGN

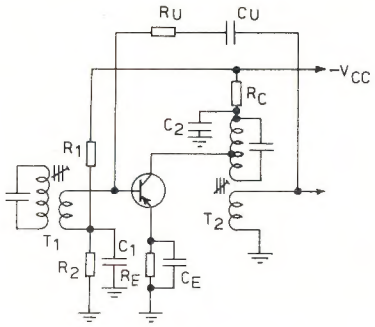
PART TWO

R. L. HARRISON, VK3ZRY*

LOW level r.f. and i.f. amplifiers are very familiar items to most of us. Valve circuits have been pretty well standardised—and, to a point, so have transistors. This article was written to introduce design techniques that can be used by Amateurs. It is not necessarily an engineering approach. No complicated maths. is involved but that which is included is no more complicated than Ohms Law. An alternative graph is provided but can only be used under limited circumstances as explained later.

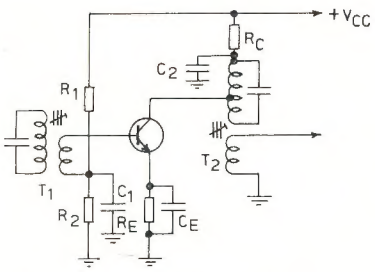
The design is set out in a step by step method again as this is most easily understood and followed. Coil design can be difficult and involve calculus, so a rule of thumb procedure has been outlined to enable transistor matching and coupling to the circuits. To obtain characteristics such as selectivity (narrow or broad) and coupled circuits with a desired amount of coupling is left to the constructor. These are basic characteristics of tuned circuits and to achieve a desired result the constructor should obtain a good text book or else buy manufactured coils to give desired results. Very successful home-brew results can be obtained from miniature ferrite pot-core assemblies and these are suggested in the text. It is advisable to follow manufacturers data supplied with the assemblies for best results.

The first circuit to be discussed is a common emitter amplifier. One circuit for germanium and one for silicon transistors is given in Fig. 1.



PNP GERMANIUM TRANSISTOR

FIG. 1(a)



NPN SILICON TRANSISTOR

FIG. 1(b)

*1 Mary Street, North Balwyn, E.9, Vic.

Now there are two applications of these circuits requiring separate considerations. The circuits can be used for an i.f. amplifier or an r.f. amplifier and will be treated in that order.

I.F. AMPLIFIERS

From the circuits in Fig. 1 it is obvious that germanium transistors may require unilateralisation (neutralisation) to cancel the high internal feedback in the transistor itself. The external feedback in Fig. 1a is provided by R_U and C_U. The silicon transistor in Fig. 1b does not require these components as internal feedback is inherently low.

Here is the design method suitable for either silicon or germanium transistors.

1. Select a suitable transistor. The α-cutoff frequency ($f\alpha$, f_{max} or whatever they call it) should be five to ten times the operating frequency at the least.

2. Determine the d.c. operating conditions and find the values of R1, R2, R_E and R_C, using the method outlined in Part 1 of this article for a low level audio amplifier.

3. Determine C1, C2 and C_E from the graph or the following equation:—

$$C\ (\mu F.) = \frac{10^6}{2\ \pi\ f\ R_X}$$

where C = by-pass capacitor in μF.
f = frequency of operation.
R_X = resistor to be by-passed, in ohms.
π = 3.1416.

In the case of the base bias network, for finding the value of C1, the resistance to be by-passed is the parallel combination of R1 and R2, or R_B, where

$$R_B = \frac{R1 \times R2}{R1 + R2}$$

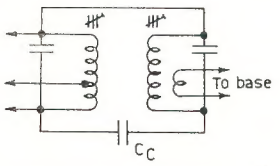
Two curves are given, one for 455 kc. and one for 1600 kc., as these are two commonly used frequencies. If a frequency higher than 1600 kc. is selected then values of by-pass capacitor can be determined as for 1600 kc.; they will be more effective by-passes!

4. Designing the transformers T1 and T2. This task is best left to the engineer for optimum design and ready made coils are available, use these if applicable. If you wish to roll your own, here are a few hints:—

(a) Use a ferrite pot core assembly, e.g. Ducon type Q2 or Neosid assembly type A2 or B1. Use manufacturer's data guides for best results.

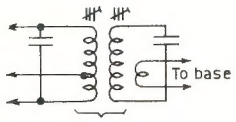
(b) For germanium transistors, the collector tap should be near the centre of the coil. For silicon transistors the collector tap should be about two-thirds down from hot end of coil.

(c) For germanium transistors the base coupling link should be about one-sixth of the total turns on the tuned winding. For silicon transistors, base coupling link should be one-twentieth to one-thirtieth of total tuned winding turns.



Two single assemblies
e.g. Ducon Q2 or Neosid AZ

FIG. 2 (a)



Double assembly
e.g. Neosid B1 side by side assembly

FIG. 2 (b)

(d) To obtain narrow or wide bandpass characteristics, double tuned transformers (Fig. 2) should be used, but a sweep generator and c.r.o., or a signal generator plus much patience, is needed to align for best results.

To roll your own double tuned assemblies, couple two single tuned assemblies as in Fig. 2a, or use a double assembly as in Fig. 2b, and rely on mutual coupling internally. Refer to manufacturer's data for best results again.

Two i.f. amplifiers giving a typical, practical example of circuits are given in Figs. 3 and 4. Note that in Fig. 3 there are no collector dropping resistors; these are unnecessary as V_{CC} is only 4v. and V_{CE} is about 3v.

You will probably notice that by-pass capacitors are lower than that predicted by the formula given previously or by the graph. This is because a different assumption was made (see the end of this article for assumptions made and derivation of the equation) to calculate the by-pass capacitors.

If you wish to use a mechanical filter in your i.f., the primary should be made parallel resonant and the secondary or output side made series resonant (see Fig. 5).

That concludes my screed on i.f. amplifiers. I haven't covered transistors and crystal filters but no doubt they are compatible; nor have I covered other useful i.f's such as 30 Mc. i.f.: strips. These require separate considerations which would take up one article themselves—later perhaps.

The next thing is r.f. amplifiers. I will discuss the common emitter design as in Fig. 1 first, then the common base arrangement.

R.F. AMPLIFIERS

Fig. 1 gives the basic circuits for germanium and silicon transistors. The germanium transistor circuit, though, may not need components R_E and C_U as transistor gain and internal feed-

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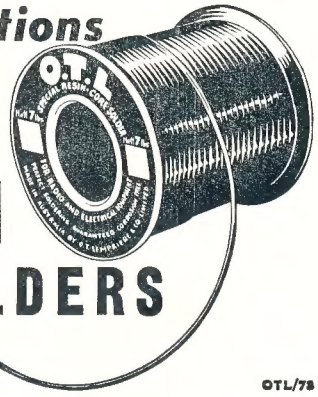

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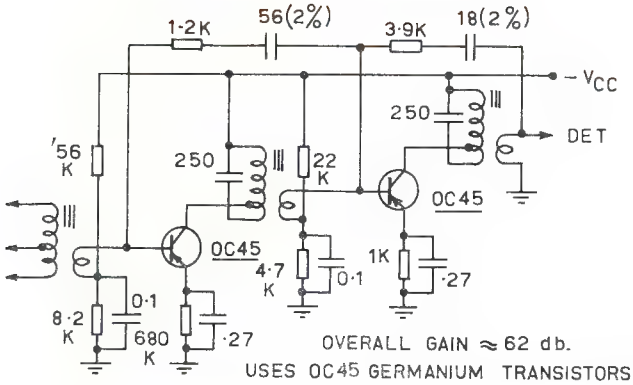
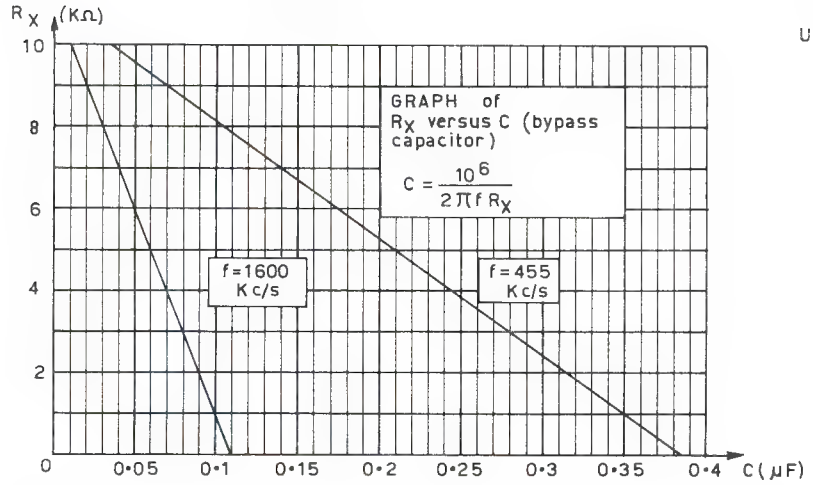


FIG. 3



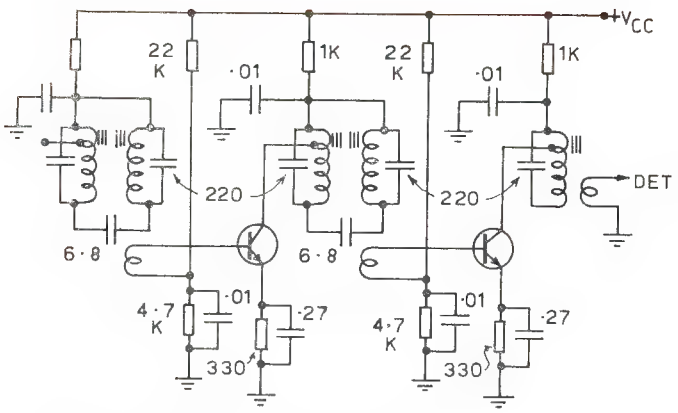


FIG. 4

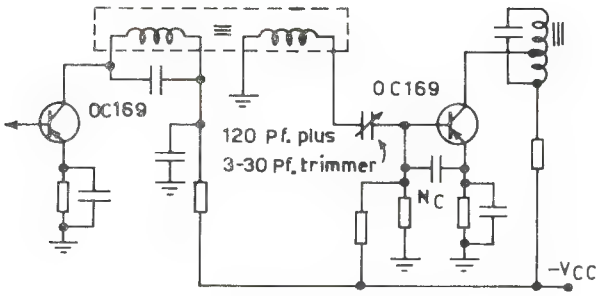


FIG. 5

back change at higher frequencies. Fig. 6 gives the general circuit for both silicon and germanium transistors. The amplifier is shown gang-tuned, but if used on a single frequency (or narrow segment) omit the tuning gang.

The design is the same as for i.f. amplifiers with the exception of the coils.

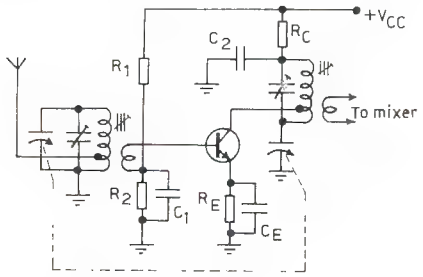


FIG. 6

Coil Design

More conventional techniques are usable here—high L/C ratio, high Q and good quality components, as in valve circuits. The base coupling link should be a few turns closely coupled to the tuned winding, even a tap on the tuned winding can be used, but a link coil is much easier to experiment with to find optimum turns.

The collector tap is best found by experiment but a good rule of thumb is about half way down from hot end for germanium transistors and one-thrid to one-tenth down from hot end for silicon transistors (depending on output impedance and gain). A link coupled into the collector tuned winding is usable if you want to experiment to squeeze everything out of the circuit.

For the 3 to 30 Mc. range of frequencies, the by-pass capacitors can be found from the graph for 1600 kc. For frequencies higher than 30 Mc. use your experience (if any). Generally 500 pF. and 1000 pF. will suffice up to 200 Mc.—**keep leads short.**

Now another circuit hops up—the common base circuit. Fig. 7 gives the most commonly (and most practical) used form. As you can see the signal is still fed into the emitter-base junction, but now output is taken across the collector-base instead of collector-emitter as in the common emitter amplifier.

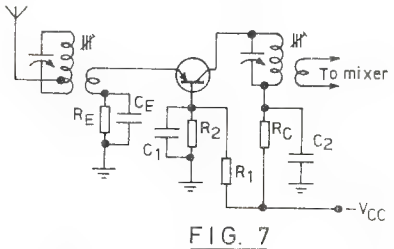


FIG. 7

The design of this amplifier follows the same lines as for the common emitter r.f. amplifier. R1, R2, R_C, R_E, C_E, C1 and C2 are determined as outlined above. This circuit finds best use in the upper h.f. into the v.h.f.-u.h.f. region.

The collector may be connected to the hot end of the coil as it has a fairly high impedance in this configuration.

ABOUT THE GRAPH

The curves were calculated from the formula for resistance-to-be-by-passed limits up to 10K ohms as this is what is generally encountered in practice. The formula was derived as follows:—

Assume $X_C = R_X \div 1000$ (for effective by-passing).

$$\text{Now } X_C = \frac{1}{2\pi f C}$$

$$\text{or } C = \frac{1}{2\pi f X_C}$$

$$\text{Then } C = \frac{1}{2\pi f \frac{R_X}{1000}}$$

$$= \frac{1000}{2\pi f R_X}$$

Now C is in Farads if f is in cycles. For C to come out in μF. and f to be in kc.:—

$$C = \frac{10^3 \times 10^3}{2\pi f R_X}$$

$$\therefore C = \frac{10^6}{2\pi f R_X}$$

where C = by-pass capacitor in μF.
f = frequency in kc.
R_X = resistance in ohms.
π = 3.142.

(Continued on Page 13)

TEST EQUIPMENT

GRID DIP OSCILLATORS

Just out! The transistorised EDDYSTONE "Edometer" type G.D.O. 390 Kc. to 115 Mc. with set of seven plug-in coils. Zener stabilisation maintains constant performance with falling voltage. Can be used as g.d.o., for resonance checks on tuning circuits, for actual measurement of inductance and capacity. An in-built modulator stage provides use as signal generator for receiver alignment or as a signal source for audio tests. Can be used as absorption wavemeter, heterodyne wavemeter and modulation monitor. Tuning is simplified by geared reduction drive while the clearly calibrated scale permits rapid reading. Meter sensitivity is adjustable. Unit includes jack for morse key for use as morse code practice oscillator. No external power source required. **Price $84.75** (inc. S. Tax).

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Peak-to-peak: 0-4000v., 7 ranges.
Output (db m): minus 20 db to plus 65 db.
Input Impedance: 1.4 megohms.

D.c. Volts: 0.1v.-1500v., in seven ranges.
Input Impedance: 11 Megohms.

Resistance: 0.2 ohm to 1000 Megohms, in seven ranges.

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D.c. Current: 0.03, 1, 50, 500 mA., 10 Amp.
Resistance: 0 to 5K, 500K, 5 Meg., 50 Meg.

The OL-64 incorporates inductance and capacity scales for useful measurement of C from 250 pF. to 0.02 uF., and inductance (L) from 0 to 5000 henries, using an external source of a.c. at 50 volts and 10 volts respectively. Direct read-out from C and L scales on meter. Full instructions included with each meter.
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S.W.R. METERS

KYORITSU Model K-109 Standing Wave Ratio Bridge, 1 : 1 to 1 : 10 s.w.r. Impedance 50 and 75 ohms. Frequency range 1.5 to 60 Mc. Includes 0-100 d.c. microammeter. $20 inc. sales tax.

PEAK MULTIMETERS

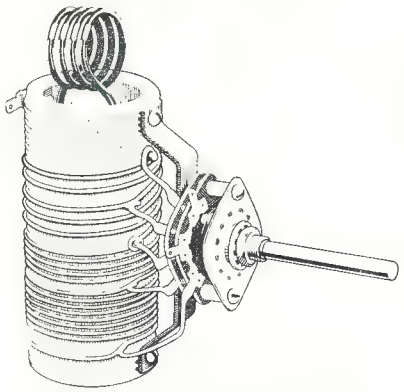
MULTIMETER 370J

D.c. volts: 0.25, 1, 5, 25, 250, 1000 (20,000 ohms/volt).
A.c. volts: 1.5, 10, 50, 250, 1000 (8000 ohms/volt).
D.c. Current: 50 uA., 500 uA., 2.5 mA., 25 mA., 250 mA. (150 mV.).
Ohms: 0-5K, 0-50K, 0-500K, 0-5M.
Scale Centre, Ohms: 46, 460, 4.6K, 46K.
db: mirus 10 to plus 5, 0 to plus 22.
Battery: Internal 1.5v. x 2.
Approx. size: 6 x 4 x 2⅝ inches.
Price: $20.75 (inc. S. Tax)

MULTIMETER 400J

D.c. volts: 0.5, 2.5, 10, 50, 250 (100,000 ohms/volt); 500, 1000 (35,000 ohms/volt).
A.c. volts: 2.5, 10, 50, 250, 1000 (12,500 ohms/volt).
D.c. Current: 10 uA., 250 uA., 2.5 mA., 25 mA., 250 mA. (150 mV.).
Ohms: 0-2K, 0-200, 0-2M, 0-20M.
Scale Centre, Ohms: 160, 1.6K, 16K, 160K.
db: minus 20 to plus 62.
Battery: Internal 1.5v. x 2.
Approx. size: 6 x 4 x 2⅝ inches.
Price $29.00 (inc. S. Tax)

PI-COUPLERS



WILLIS MEDIUM POWER TYPE

For use up to 600 watts p.e.p. Match plate loads of 2,000 to 3,500 ohms (Z) and higher into co-axial cable. Operating Q increases on higher frequencies to increase harmonic suppression enabling practical values of tuning capacity to be used on 10 and 15 metres and allowing for wiring inductance (L). Incorporates extra switch section for shunting additional capacity (C) if required, or switching other circuits. Switch rated for 10 amps. at 2,000 volts with contact resistance (R) of 0.8 milli-ohms.
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Price: $1.30 each (inc. S. Tax)

GELOSO PI-COUPLERS

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Type 4/112 for use with single ended tubes type 6146, 807, etc.
Both Types, **Price: $3.95** (inc. S.T.)

GELOSO V.F.O.

Model 4/104 V.f.o. Unit. Tunes 80, 40, 20, 15, 11 and 10 metres. Uses 6CL6 and 5763 valves. **Price** (valves extra), **$24.60.**

Model 4/102 V.f.o. Unit. Tunes 80, 40, 20, 15 and 10 metres. Uses 6J5G, 6AU6 and 6L6 valves. **Price** (valves extra), **$24.60.**
Prices include Sales Tax.

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All Geloso V.f.o. Units are supplied complete with calibrated dial, pointer and perspex escutcheon.

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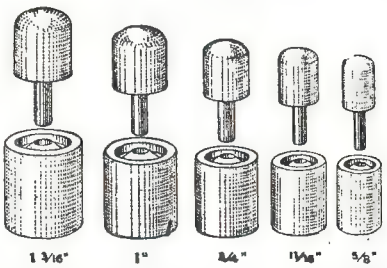
Porcelain Egg-type Insulators. **Price: $1 doz.** (inc. S. Tax).

PUNCHES



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5/8 in.	$2.60	1-7/8 in.	$8.00
11/16 in.	$2.80	2 in.	$8.40
3/4 in.	$3.00	2-1/16 in.	$8.60
13/16 in.	$3.20	2-1/8 in.	$9.00
7/8 in.	$3.80	2-3/16 in.	$9.40
1 in.	$3.80	2-1/4 in.	$9 60
1-1/16 in.	$4.00	2-5/16 in.	$9.60
1-1/8 in.	$4.00	2-3/8 in.	$10.40
1-3/16 in.	$5.00	2-1/2 in.	$11.00
1-1/4 in.	$5.20	2-3/4 in.	$12.40
1-5/16 in.	$5.20	3 in.	$13.40
1-3/8 in.	$5.60	3-1/4 in.	$15.80
1-7/16 in.	$5.80	3-1/2 in.	$18.20

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Type 350A—Impedance ratio 1 : 1. 75 ohms unbalanced to 75 ohms balanced. 3 to 30 Mc. For use at centre of a dipole antenna with co-axial cable feed line or at base end with 75 ohm twin line. Co-axial connector is Belling & Lee L604/S and lug terminals. **Price $3.77** (inc. S.T.)

Type 351A—Impedance ratio 1 : 4. 75 ohms unbalanced to 300 ohms balanced. 3 to 30 Mc. For use at centre of a folded dipole antenna with co-axial feed line or at base end with 300 ohm twin line connector and terminals as 350A. **Price $3.77** (inc. S.T.)

Type 352A/BC—Details as 350A except frequency range 500 Kc. to 5 Mc., or to 30 Mc., for receiving purposes only with increased attenuation. **Price $3.77** (inc. S.T.)

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Type 354B—Type 351 with SO-239 co-axial socket. **Price $4.39** (inc. S.T.)

Type 355C—Impedance ratio 2.1 : 1. 52 ohms unbalanced to 25 ohms unbalanced. 3 to 30 Mc. For use at the base of a mobile whip antenna, coupled to fixed or adjustable transmitter output impedance. Lug terminals. **Price $3.49** (inc. S.T.)

Type 356C—Impedance ratio 3.1 : 1. 78 ohms unbalanced to 25 ohms unbalanced. 3 to 30 Mc. Lug terminals. Use as 355C. **Price $3.49** (inc. S.T.)

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A Transistorised Amateur Band Receiver

PART THREE

HAROLD L. HEPBURN,* VK3AFQ

BEFORE describing the local oscillator section of the Moorabbin Club project receiver, the results obtained during the testing of the finished b.f.o. units will be discussed.

This testing was done in two stages. Firstly, the two coils were checked for "out of circuit" resonance before being soldered on to the printed circuit board and, secondly, the completed units were tested for oscillation, wave form and frequency range. Both checks were done at various project meetings arranged for the purpose.

The test set up for measuring the "out of circuit" performance of the coils is given in Fig. 5.

Output from a 75 ohm signal generator was applied across the coil under test. The resonating capacitance for the oscillator coil was 1,100 pF. (2 x 2,200 pF. in series) and 300 pF. for the amplifier coil. A v.t.v.m. fitted with an r.f. probe, was connected across the test coil and used as a resonance indicator. A few coils were checked with core full in and core full out to determine the range of adjustment available but the majority of coils were checked with the core full in.

Results obtained are detailed in Tables 1 and 2.

Resonating Capacity pF.	Out of Circuit Resonance Kc.	Number of Coils in Group
	< 414	3
	415 - 419	1
1100	420 - 424	3
	425 - 429	10
±2½%	430 - 434	7
	435 - 439	3
	440 - 444	1
	> 445	3

Number of coils tested = 31.
Average = 430 Kc.

Table 1.—The Oscillator Coil, L1.

The spread of results on both coils was higher than expected, especially in the case of the amplifier coils. Investigation showed that—in all cases but one—coils exhibiting a high "out of circuit" resonance were improperly assembled. Either the ferrite ring was loose in the can or was prevented from bedding down on to the base of the former by the winding wires. These faults were corrected in the obvious fashion. In the one unexplained case, the coil reacted properly after rewinding and may have had too few turns in the first place.

Of the three oscillator coils exhibiting a very low "out of circuit" resonance, one was rewound with the correct number of turns and reacted correctly. The two remaining "low" coils were not rewound and after incorporation in the circuit would only just tune to 455 kc. with the b.f.o. trimmer capacitor at minimum capacity. It is assumed that these coils had been wound with too many turns.

Resonating Capacity pF.	Out of Circuit Resonance Kc.	Number of Coils in Group
	< 489	1
	490 - 494	4
	495 - 499	3
300	500 - 504	7
	505 - 509	-
±2½%	510 - 514	5
	515 - 519	3
	520 - 524	4
	> 525	3

Number of coils tested = 30.
Overage = 507 Kc.

Table 2.—The Amplifier Coil, L2.

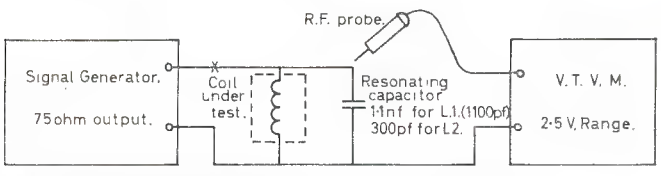
The equipment used to check the finished units is shown in Fig. 6.

Output from the unit was taken from the amplifier base and fed into a mechanical filter having a 455 kc. centre frequency and a 6 kc. bandpass at the —6 db. points. Output from the filter was fed into a c.r.o.

Adjustment was remarkably simple and consisted merely of setting the b.f.o. trimmer capacitor at half mesh and then adjusting the slug of the oscillator coil until a pattern was obtained on the c.r.o. The b.f.o. trimmer was then swung through its range and in most cases it was possible to tune the b.f.o. through the pass band of the filter.

Neil VK3ZRT and Harold VK3AFQ testing stage 1 audio boards at Moorabbin Radio Club's project meeting.

* 4 Elizabeth Street, East Brighton, Vic.



Note - If a high impedace signal generator is used, a series resistance of 3 - 10K should be inserted at the point marked 'X'.

Fig. 5. COIL TESTING EQUIPMENT.

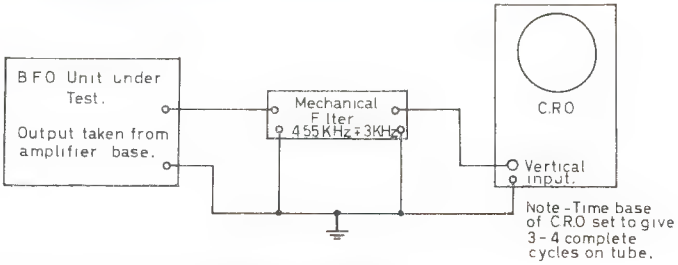

B F O Unit under Test.
Output taken from amplifier base.
Mechanical F lter
455KHz ± 3KHz
C.R O
Vertical input.
Note - Time base of C.R.O set to give 3 - 4 complete cycles on tube.

Fig. 6. B.F.O. UNIT TESTING EQUIPMENT.

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2, 5, 10, 25 uF., 12v.w.
2, 5, 10, 25 uF., 50v.w.

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50 p.i.v. at 18 amps. Suitable for battery chargers, etc.
Either "K" or "A" to case available. **75c** plus S.T. 12½%.
Heat Sink Adaptors to suit .... **25c** plus S.T. 12½%.
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1N3660

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Plus pack and post 5c pair.

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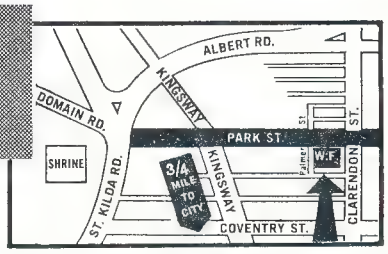
220 PARK ST. SOUTH MELB., VIC. PHONE 30 lines **69-0151**



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Two exceptions (noted above) would only just reach the lower side of the filter pass band and one would only just reach the high side of the filter.

Since the test is reasonably stringent the results imply that out of thirty-one units twenty-eight were correct and that the three exceptions were not more than 5-6 kc. off. Unless it was intended to use a mechanical filter centred on 455 kc. in the finished receiver, this minor variation would easily be taken up by centering the i.f. strip on the appropriate frequency.

Another twenty units were not tested at the project meeting, but all information to hand indicates that they are operating satisfactorily.

STAGE 4—LOCAL OSCILLATOR

The circuit diagram for the fourth stage of the receiver is given in Fig. 7. The emitter of the AF115N oscillator is tapped down the tank circuit by means of a capacitive divider formed by the 470 pF. and 1,000 pF. 5% silver mica condensers. These two in series provide 340 pF. of fixed tank capacity.

The tuning condenser is a Polar 15-392 single gang item. It was chosen for its excellent mechanical stability and ceramic insulation.

The dial and drive used on the receiver is a Jackson Brothers' 6/36. It has a dual speed drive, semi-circular scale and plastic cursor. In the forward direction the drive ratio is 6 : 1 and for the first reverse turn of the tuning knob is 36 : 1.

This dial seemed to be the ideal compromise between size, price and mechanical excellence. It is free from backlash and is readily calibrated for whatever frequency range is of interest.

In Melbourne it is obtainable from Ham Radio Supplies in Hawthorn.

Next month it is hoped to describe the final section of the receiver—the r.f. and mixer stages—and to give information on the (50 odd) i.f. strips now under construction.

ERRATA

It is regretted that three condensers were omitted from the diagram of the i.f. stage published last month.

A 100 uF. 15 volt electrolytic, paralleled with an 0.01 uF. 25 volt redcap. should have been shown across the 7.5 volt regulated rails, while a second 0.01 uF. 25 volt should be connected between the collector of the OC44 detector and ground (+7.5v.).

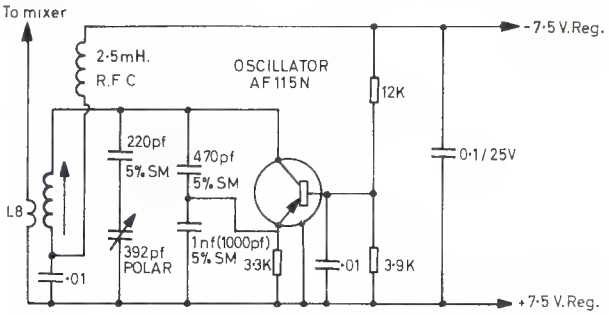

Fig. 7. VK3APC.- LOCAL OSCILLATOR.

The 220 pF. 5% silver mica series padder condenser restricts the effective tuning swing to about 140 pF. and under these circumstances the oscillator tunes 3.9 Mc. to 4.5 Mc. Since the oscillator is on the high side of the signal, the resultant tuning range is 3.45 to 4.05 Mc. This range covers the 80 metre band and is ideal for future use with h.f. converters.

Removal of the padder opens out the signal tuning range to approximately 2.7 to 4 Mc. and makes the receiver suitable for tuning any chosen 1.3 Mc. of say the 6 or 2 metre bands.

Use of the companion 15-500 pF. variable in the Polar catalogue would provide a greater coverage (which would approximate to 2.5 to 4 Mc.), giving a 1.5 Mc. section of the v.h.f. bands. This latter suggestion has not been tried.

The coil L8 consists of a 10 turn tuned winding of 29 B. and S. enamelled wire on a Ducon miniature Q2 pot core. The output link is a single turn of the same size wire.

The 0.01 and 0.1 uF. condensers are Ducon 25v. d.c.w. "Redcaps" and the three resistors are normal tolerance items.

The complete unit—like its predecessors—is built on a printed circuit board made specially for the project.

Transistor Amplifier Design

(Continued from Page 9)

USING THE GRAPH

Look up the value of the resistor to be by-passed (R_x) on the vertical scale, project a horizontal line across to the curve of the appropriate frequency. Where the horizontal line crosses the curve, draw a vertical line down to the horizontal axis (C) and read off the value of the capacitor and use the nearest value obtainable in your circuit.

Example: The emitter resistor of an i.f. amplifier at 455 kc. is 1K ohms.

A horizontal line drawn from 1K ohms on the R_x scale intersects the 455 kc. graph at a certain point. A vertical line drawn from this point down to the C-axis gives 0.35 μF.

Well that is about the lot for i.f. and r.f. amplifiers. I have not covered all possibilities, but for most, the information presented above will help you to design and construct something to suit your needs.

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Obtainable from your Divisional Secretary, or W.I.A., P.O. Box 36, East Melbourne, C.2, Victoria.

"FIFTY AND OVER"

"Well, well, well. If it isn't my old friend Bill. Or should I say sister Mary's old friend Bill. Ha, ha, ha. Well, well, Bill. Haven't seen you since last night. Ha, ha, ha. You can come in because Mary's out. She knew you were coming. Ha, ha, ha. No, I don't mean it. She'll be back soon and until she comes I'll entertain you in the shack. I've just switched the transmitter on. We'll have some fun getting contacts. But no YL's for you, old man. You're hooked already. Ha, ha, ha.

"Let's tune around a bit and see what we get. There's Bert ZFC. Listen. He's just finished a contact. I'll call him. VK3ZFC, VK3ZFC, VK3ZFC, VK3ZFC, VK3ZFC . . . I'll give him a few more calls. Maybe the poor old man's deaf. VK3ZFC, VK3ZFC, VK3ZFC, VK3ZFC. This is VK3ZOM listening for you, old man. What's new in the chookhouse? VK3ZOM listening. Over.

VK3ZFC, VK3ZFC. Well, well, well. Glad to know you're still in the land of the living, Bert. Ha, ha, ha. O.K. about the new gear you're building. By the way I've got Bill here with me. He comes round every night to see me. Ha, ha, ha. Though he doesn't seem to be very interested in radio. He's got other fish to fry. Ha, ha, ha. Yes, we're going to build some gear here, too. We've got patents out for a electronic mouse-trap, a mother-in-law detector and lots of other things I can't tell you about over the air. Ha, ha, ha. We're going to be pretty busy here when we get busy. Ha, ha, ha. Say hullo to Bert, Bill. You'll have to learn to speak up for yourself. If you don't do it now you won't get a chance later on, that's for sure. Ha, ha, ha.

That's right. Well I'll put it back to you, Bert, in case your receiver's packed up and I've been wasting my words on the desert air. Ha, ha, ha. VK3ZFC this is VK3ZOM pulling the big switch on the transmitter and pushing the little button on the receiver and listening for you. Over.

VK3ZFC, VK3ZFC. This is VK3ZOM pushing the big switch on the transmitter and returning. Bill missed your words of wisdom, old man. He suddenly remembered he wanted to get toffee for Mary so he's shot off down the street. Maybe the sight of the gear frightened him. Ha, ha, ha. Sorry you've got to go out. I was looking forward to a real long rag-chew. Don't seem to get them often nowadays. Everyone's so busy. I'm busy, too, but not that busy. Ha, ha. Never mind. I'll get you again soon. Cheers and beers and don't do anything I wouldn't. Ha, ha, ha. This is VK3ZOM off and clear with VK3ZFC and having a snoop round the band.

VK3AJE, VK3AJE, VK3AJE, VK3AJE, VK3AJE. VK3AJE, VK3AJE. This is VK3ZOM calling you. What say, Harry. Over.

VK3AJE, VK3AJE. Well, well. If it isn't old Harry. Ha, ha. Haven't heard you on the air for hours. And what's new in the State of Denmark? We've been very busy here doing lots of nothing. Ha, ha, ha. Anyway, back to you she comes. VK3AJE this is VK3ZOM listening for you with both ears. Over.

VK3AJE, VK3AJE. In case you don't know it this is VK3ZOM returning. Well, well, well. Isn't that a coincidence. Must be a fight or a football match on this evening or something. Was just having a short and sweet contact with Bert. He had to go out, too. You'll have to get a mobile and then we can have a road chew. I mean a road rag chew. Ha, ha, ha. Well, cheers and beers and see you soon. This is VK3ZOM off and clear with VK3AJE and 'aving hanother 'unt—I mean having another hunt round the band . . .

Hullo sister Mary sweetheart. Yes, boy friend number one came in and shot out again to waste some money on you. Can't imagine why. Okay. I'll tell mum you've gone out with him. I'll be having a rag-chew if I can find anyone. Must be someone who hasn't got to rush out to a fire or something. Ha, ha.

Hullo CQ. Hullo CQ . . . Hullo CQ . . .

Hullo CQ. Hullo CQ. This is VK3ZOM with a sore throat looking for contacts. Isn't there anyone on the band? Or isn't the old transmitter working? . . . Hullo CQ. Hullo CQ. Hullo CQ . . . This is VK3ZOM closing down in disgust after talking to himself for the last half hour. Still even if the audience was small it was intelligent. Ha, ha, ha. Still I must say the band's not what it used to be. Never mind, we'll try again tomorrow. This is VK3ZOM pulling all the big switches and going to bye-bye.

—Roy Hartkopf, 34 Toolangi Road, Alphington, N.20, Vic.

SIDEBAND TOPICS

Which manufacturer supplies each transceiver with an individual record of the v.f.o. temperature compensation-drift curve? **GALAXY** does that and no other! And with that graph there is a record of the drift compensation, never more than 500 cycles drift from cold to warmed-up and of the v.f.o. stability after 30 minutes warm-up period.

The **GALAXY** is a better bargain, better receiver, better a.v.c. action, sideband switching without frequency shift, up to $100 savings with the full line of accessories.

★ **GALAXY V. all-band Transceivers, with 240v. supply/speaker unit, $600.**
★ **Hy-Gain Beams: TH3JR $96; TH6DX $200; 4O2BA $150. Hy-Gain Verticals: 14AVQ $44; 18AVQ $70.**
★ **ALLIANCE and C.D.R. Antenna Rotators, 230v. a.c., $55 to $180.**
★ **AUTRONIC Automatic Keyers, $70.**
★ **Mobile 12v. d.c.-d.c. Supplies, $100 to $120.**
★ **WEBSTER ALL-BAND Mobile Radiator, complete, $48.**
★ **5.7 Mc. and 9.0 Mc. Crystal Filters, Air Trimmers, Reduction Drives, hard-to-get Transceiver Tubes, Co-axial Cable Baluns, etc.** Sorry, no 572B Tubes yet, the manufacturer and Waters Co. have let me down!

USED, RE-CONDITIONED EQUIPMENT

● **COLLINS 75S1 with Q-Multiplier; COLLINS 32S1 with Collins a.c. supply, both immaculate condition, $900 pair.**
● **COLLINS heavy duty 12v. d.c.-d.c. Supply, with KWM-2 mobile mount, $150.**
● **Genuine SWAN SW240, with neat home-made a.c. supply, $275.**

SIDEBAND ELECTRONICS ENGINEERING

P.O. BOX 23, SPRINGWOOD, N.S.W. Telephone: Springwood 51-1394

NEW CALL SIGNS

JUNE 1966

VK1AN—R. C. Elliott, 37 Ingamells St., Garran.
VK1ZBC—B. H. Christensen, 1 Bosch Place, Chifley.
VK1ZBJ—G. S. Jennings, 41 Carruthers St., Curtin.
VK2RC—J. M. Campbell, 10 Ingham St., Wyong.
VK2UQ—M. L. Steward, 68 Westbrook Ave., Wahroonga.
VK2BBC J. R. Thyrd, 28 Hood Ave., Earlwood.
VK2BIA—H. E. Brown, 51 Miral St., Caringbah.
VK2BLC—G. C. Chenhall, 30 North St., West Dubbo.
VK2BUZ—G. K. Trevitt, 28 Schofield Ave., Earlwood.
VK2ZFG—G. T. Pile, 52 Clement St., Forbes.
VK2ZFY—K. L. Robinson, 8 Church St., Pymble.
VK2ZFZ—A. J. Smith, 16 Loftus St., Katoomba.
VK2ZHF—J. F. Hennell, 564 Great Western H'way, Pendle Hill.
VK2ZNO—D. J. Waterhouse, 28 Rosebery Rd., Killara.
VK2ZPF—P. B. Fischer, 8 Aubrey Rd., Northbridge.
VK2ZTP A. T. Deans, 29 Memorial Ave., St. Ives.
VK2ZTR—R. G. Turner, 32 Railway St., Wentworthville.
VK2ZXC—N. Deitch, 6 Water St., Camperdown.
VK2ZYF—North Shore Radio Club, 11 Ruby St., Mosman.
VK3AQ R. J. Callander, 383 Warrigal Rd., Burwood.
VK3SL—M. L. Brane, 24 Ernest St., Broadmeadows.
VK3AAZ—P. H. Cole, 59 Aylmer St., North Balwyn.
VK3AEY—D. G. Semmens, Teachers' Residence, Warrion, via Colac.
VK3AHS—W. Yates, 26 Henry St., Highett.
VK3AJV—R. E. Durrant, 1 Grosvenor St., North Blackburn.
VK3AMQ—G. C. Page, 72 Ursa St., North Balwyn.
VK3ATD—S. C. G. Macindoe, 101 Grange Rd., Toorak.
VK3AUW—B. J. Weidemann-Petersen, 58 Plenty Lane, Greensborough.
VK3ZIF—I. F. Holmes, 64 South St., Glenroy.
VK3ZRI—I. R. Price, 14 Wilks Ave., Malvern.
VK3ZRU—N. W. Ahrens, Diggers Rest.
VK3ZTS—P. J. Tyers, Tyers Rd., Bena.
VK3ZVC—M. T. Cole, 3 David St., East Bentleigh.
VK3ZWK—W. M. Ketley, Flat 6, 3 Edward Ave., Dandenong.
VK4CO—G. Cole, Station: Nurses' Quarters, Chillagoe Hospital; Postal: C/o. P.O. Chillagoe.
VK4DU—J. K. McCarthy, Station: Maritime Mobile aboard M.V. "Pandemonium," Postal: 13 James St., Currumbin Beach.
VK4QT—A. Anderson, 1 Quarry St., Ipswich.
VK4UB—W. Dalgleish, 25 Crawford St., Redcliffe.
VK4UD -R. C. Wright, 119 Elliot Heads Rd., Bundaberg.
VK4ZJC—R. J. Cummings, 56 Marsh St., Cannon Hill.
VK5QZ—J. A. Hackworth, 34 Oaklands Rd., Somerton Park.
VK5ZGO—G. K. Oates, 17 Angas Rd., Hawthorn.
VK5ZPM—P. A. Matthews, 16 Gurr St., Goodwood Park.
VK6ZFE—L. M. Gierczycki, 88 Alexander Rd., Rivervale.
VK6ZFF—D. V. Robinson, 5 Jarvis St., Bunbury.
VK6ZFR—P. C. L. Robertson, 9 Ruislip St., West Leederville.
VK8ZCF—H. Schroder, C/o Peko Mine, Tennant Creek.
VK9SR—Sopas Radio Club, S.D.A. Mission Hospital, Sopas, T.N.G.

☆

SURVEY OF OCCUPANCY OF H.F. BANDS

Part of the work carried out at the Postmaster-General's receiving station at High Park, Victoria, for the I.F.R.B. is a survey of the occupancy of the h.f. bands. During these surveys, it is necessary to identify, rate (in SINPO code), and record all transmissions heard in the band.

To simplify the work for the operators, a frequency measuring receiver had been designed and built having a range of 500 Kc. to 30 Mc. The frequency that the receiver is tuned to is shown on an eight digit in-line display. Accuracy is determined by the standard 1.0 Mc. crystal used in the counter, and in the present equipment will be 1 in 107.

The problems that had to be solved during the development of the counter mechanism which is attached to a standard communications receiver were many.

—Proceedings I.R.E.E. Australia, August, 1966.

AUST. RESULTS OF WORLD-WIDE DX CONTEST, 1965

C.W.					
*VK1DA	7	8,424	108	8	18
*VK2PV	A	140,430	321	59	95
VK2VN	A	73,080	207	42	78
VK2ADE	A	42,630	146	40	65
*VK2APK	14	74,706	317	32	54
*†VK2GW	7	34,800	242	20	30
*VK3AXK	A	131,979	436	41	70
*VK3RJ	21	20,300	147	20	30
VK3ABA	21	10,500	102	14	21
*†VK3ADB	14	295,596	788	35	91
VK3ABR	14	6,300	50	18	24
*VK3APN	7	12,240	102	17	23
†VK3XB	3.5	1,034	39	6	5
*†VK4EL	21	80,178	396	21	48
*VK4UC	14	3,811	45	15	22
*VK4SS	7	8,964	85	18	18
VK5BS	A	2,112	33	13	9
*VK5KO	21	51,264	246	23	49
*VK5WC	14	8,106	83	18	24
*VK6RU	A	244,032	549	57	107
*VK7SM	A	72,974	252	42	65
VK9DR	14	120	7	4	4
PHONE					
*VK2APK	14	133,770	456	28	77
VK2VN	14	18,662	101	20	42
VK2WD	14	12,291	90	18	33
*VK3ATN	A	517,860	717	92	160
VK3LW	14	4,284	41	15	21
VK3XB	14	3,465	39	13	20
VK3KS	14	704	16	7	9
*VK4LT	A	141,750	360	49	86
VK4CK	A	5,049	51	17	16
*VK4EL	21	6,477	128	9	8
*VK4SD	14	118,692	339	34	92
VK5LC	14	3,116	28	16	22
*VK9DR	A	16,170	104	19	36

* Certificate Winners.
† Continental Leaders—Single Band.

N.B.—Rules for the 1966 Contest are the same as for last year. Refer October 1965 "Amateur Radio."

TECHNICAL ARTICLES

Readers are requested to submit articles for publication in "A.R.," in particular constructional articles, photographs of stations and gear, together with articles suitable for beginners, are required.

ERRATA

Several embarrassing errors crept into the reprinted article last month, "The 80 and 40 Metre Transistor Special." In Fig. 1 the "transmit" side of switch S1B is shown connected to the two bases of Q3 and Q4, whereas it should be connected to the two collectors instead. The r.f. choke at the input of L1 should be 10 **micro**henries instead of 10 millihenries as shown. Collector current for the oscillator is 7.5 mA; for the buffer, 100 mA.; and for the p.a., 800 mA., all with a 25v. supply, on 80 meters.

ANOTHER WINNER FROM THE JOYSTICK STABLES

THE JOYSTICK DX-MAGNET V.F.A.

Introducing this **NEW LOW PRICED** model of the **WORLD FAMOUS "JOYSTICK" Antenna!!!**

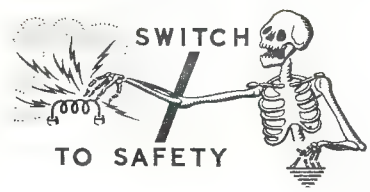
- 7′ 6″ long assembled, 2′ 8″ packed.
- Especially suitable for **all** receiving purposes and **medium power transmitting**. 1.4 to 32 Mc.
- The **ideal** antenna for **all band** work on DX-peditions and **all** portable applications.
- Lean it against the wall, hide it behind the window pelmet, lay it under the bed. Wherever you put it, the **"JOYSTICK" DX-MAGNET** gives an **amazing** account of itself.
- **Do not** confuse the **"JOYSTICK"** with conventional loaded whips—there is **nothing conventional** about the **"JOYSTICK."**

SPECIAL INTRODUCTORY OFFER!

Complete "JOYSTICK" DX-MAGNET system comprising: DX-MAGNET V.F.A., "JOYMATCH" Type 3 A.T.U., 8 ft. special feeder, $20.10 only!!
(extra feeder 10 ft. for 30c)

The **Revolutionary DX-Magnet V.F.A.** (world patents pending) has been acclaimed already by G2FRY and G3HTU who report performance up to usual high "JOYSTICK" standard.

PENNANT IMPORTS (ELECTRONICS) CO.
P.O. Box 26, Beecroft, N.S.W.



CRYSTAL PYE DIVISION

New Lower Prices for Close Tolerance Gold Plated Crystals for Amateur Applications

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★ 1.8 Mc. to 14.999 Mc.	± 0.005%. In Style "D" Holders, ½" pin spacing	$4.85
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★ 1.0 Mc.	± 0.005%. In Style "D" Holders, ½" pin spacing	$9.00

Many other types and tolerances are available from our standard production.

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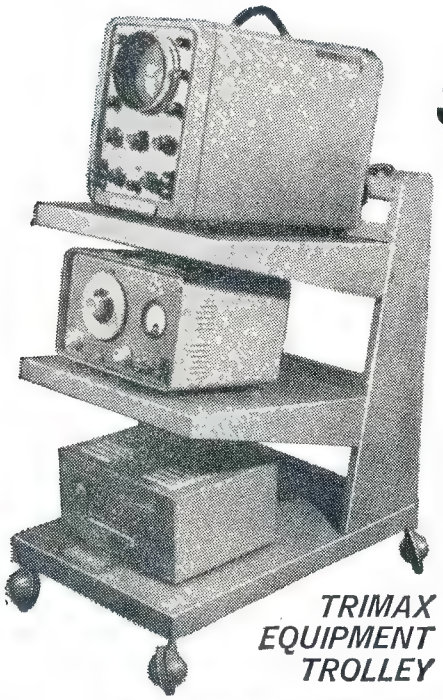

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SMOOTHEST MOVEMENT brings Australia-wide acceptance!

Success shown by Australia-wide sales of the Trimax Laboratory Equipment Trolley is due to functional design, use of high quality rubber tyred swivelling castors, and finest workmanship.

Fitted (as illustrated), the unit is ideal for moving heavy electronic test equipment. By inverting the shelves, the unit becomes an ideal mobile production trolley with deep, easily accessible trays.

Made in standard order, the Trolley is finished in grey hammertone metal. Available with or without three mains outlet sockets which allows mains-operated equipment to be supplied by one extension lead.

Trolley supplied in easy-to-assemble knock-down form for economic transport.

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L37/A

YO AWARDS

GENERAL RULES

The gallant idea of peaceful coexistence among people, as well as the tightening of friendly relations with all Radio Amateurs of the world, has animated the Central Commission of the Radio Sport of Rumania to sponsor a number of valuable awards.

All Radio Amateurs are entitled to these awards, by carrying out the conditions required for each particular award, under the following general rules:

Bands: 3.5, 7, 14, 21, 28 Mc.
Mode: CW, AM, SSB, mixed.
RST: Minimum 338; RS: Minimum 33.
All contacts have to be confirmed by QSL cards. YO cards being in the applicant's possession. (Exception to this rule may be granted for QSOs made during the international contests.)
YO awards are not issued for various modes, but each class is a separate award.

The application is of GCR kind, and the log will be certified either by the awards manager of the Association, or by two licensed Radio Amateurs, having checked the validity of the sighted QSL cards. Thus, the original QSL cards are not needed for checking, but CCSR may, at any time, require some cards, or extracts of contest logs, for a direct inspection.

The fee for any award and class is 7 IRC's or $1.00 (packing and mailing included).

All SWLs may get these awards in accordance with the above mentioned rules.

DXCC and WAE official lists will be the basis for all YO awards.

Applications for all YO awards will be addressed to: Central Radio Club, P.O. Box 1395, Bucharest V., Rumania.

The awards will be issued only after the YO stations listed in the application logs have received the applicants QSL cards.

When there are fears that some cards have gone astray, the applicant is urged to send new QSL cards for the YO Hams, together with his application.

QSL cards must be sent for all YO contacts made during contests, too.

The applicants may get, at their request, YO badges too, at a cost of 7 IRC's or $1.00 each.

YO-AD—WORKED ALL YO DISTRICTS

The award is issued for two-way contacts with YO stations located in all YO districts, namely: YO2, YO3, YO4, YO5, YO6, YO7, YO8, YO9.

The award has three classes: Class I., for working all 8 districts; Class II., 6 districts; Class III., 4 districts. Each YO district worked will be awarded by a specific seal on the certificate.

A district is considered to be fully worked after two-way contacts with a minimum number of YO stations located in that district, depending on the applicant's location zone, as follows:

	No. of QSOs needed for each YO district		
Location Zone	Class I.	Class II.	Class III.
15, 16, 20	10	6	3
14, 17, 21, 33, 34	6	4	2
All other Zones	3	2	1

A YO station may be worked but once. Valid contacts after 1/1/60.

YO-AM—YO ALMA MATER

This festive award is issued to celebrate the 100th anniversary of Bucharest University.

For this award only contacts after 15/7/64 will count. Depending on his location, the applicant has to gather the following number of points:

	Need.	Pts. scored per contact				
Location Zone	Pts.	3.5	7	14	21	28 M.
15, 16, 20	60	3	1	1	4	8
14, 17, 21, 33, 34	40	4	2	1	3	6
All other Zones	20	8	3	1	2	4

The points mentioned above are scored for working different YO stations.

Working the same YO station on several bands, the points scored for these contacts will be multiplied by 2 for 2 bands, by 3 for 3 bands, by 4 for 4 bands, and by 5 for 5 bands. For instance: A Ham located in Zone 33 had 4 contacts with the same station on 3.5, 7, 14, 21 Mc. bands. The overall score for these contacts will be: 4 plus 2 plus 1 plus 3 equals 10 multiplied by 4, equals 40 points, which is enough to get the award.

YO-BZ—WORKED BALCANS PEACE ZONE

This award is issued in three classes, for contacts made after 1/1/60, in accordance with the following rules:

Stations outside Europe (DX): Class I., 5 countries and 10 districts; Class II., 4 and 8; Class III., 3 and 6; including a minimum of three YO districts.

Balcanic countries and districts considered for this award are:

	Countries	Districts
1.	BULGARIA	LZ1, LZ2
2.	GREECE	SV
3.	CRETE	SV
4.	DODECANESE	SV
5.	TURKEY	TA (European part)
6.	ALBANIA	ZA
7.	RUMANIA	YO2, YO3, YO4, YO5, YO6, YO7, YO8, YO9.
8.	YUGOSLAVIA	YU1, YU2, YU3, YU4, YU5, YU6.

YO-CM—YO CHECK MATE

This award is issued for contacts made after 1/1/60 with YO stations under following conditions:

The applicant keeps a record of his contacts like this:

A chess-board is chronologically numbered from 1-64 (the first row with figures from 1-8; the second row with figures from 9-16, etc.).

On the first row of squares (1-8) and on the eighth one (57-64) you will fill in the call signs of the YO DX Club members you have worked.

On the second row of squares (9-16) and on the seventh one (49-56) respectively, you will fill in the call signs of other YO DX Club members, or some of those of the 1st or 8th rows worked on other bands.

The 2nd and the 7th rows may be filled in also with other YO stations, which are not members of the YO DX Club, but whose call signs include—among the last 2 or 3 personal letters—at least one letter identical with one of the last 2 or 3 personal call letters of an existing call sign of the 1st or 8th rows.

For instance: On the 3rd square is filled in the call sign YO6AW; on the 11th square you may fill in, for instance, either YO7WC, or YO5XA.

Consequently, there are needed 32 contacts with YO stations, including a minimum of 16 contacts with YO DX Club members.

It is suggested that the applicant should send—together with his regular application log form—the sketch of a chess-board with the call signs of all YO stations worked, filled in on the respective squares, in accordance with the above mentioned rules.

Radio Amateurs succeeding to fill the whole chess-board (64 YO contacts), including a minimum of 16 YO DX Club members, will receive the "YO Check Mate Master" award.

YO-DC—WORKED DOUBLE CALL

There are needed 26 contacts with stations whose call signs have two identical letters after the district (or state) figure. (Combinations of 3 letters are not accepted).

These "double call" call signs must form the whole latin alphabet (i.e. ... AA to ... ZZ).

At least 15 different countries must be represented (DXCC list). For any country, only as much as 5 contacts will be considered for this award (there is no limitation for YO "double call" contacts), but European Amateurs have to work at least 4 YO "double call," and DX Hams at least 2 YO "double call."

Valid contacts after 1/1/60.

YO-DR—WORKED ALL DANUBE RIVER COUNTRIES

There are needed two-way contacts with Amateur stations located in the riparian countries of the Danube River, namely: DJ-DL, OE, OK, HA, YU, LZ, YO and UB5.

DX stations must have 2 contacts with each country mentioned above on any 2 different bands, plus 3 contacts with YO stations, on at least any 2 different bands.

Out of the needed contacts, at least 3 QSOs must confirm contacts with stations located in 3 different towns on the Danube River.

A YO station may be worked but once. Valid contacts after 1/1/60.

YO-DX-C—WORKED YO DX CLUB MEMBERS

There are needed two-way contacts with YO DX Club members after 1/1/63, as follows:

Oceania Hams, 2 QSOs.

The following stations are member-stations of the YO DX Club at 1/6/65:

YO2BB, YO2BN, YO2BU, YO2CD, YO2FU, YO2IB, YO2QM, YO2KAB, YO2KAC.
YO3AC, YO3CR, YO3FF, YO3IF, YO3IW, YO3RD, YO3RF, YO3RG, YO3RH, YO3RK, YO3RO, YO3RX, YO3VN, YO3YZ, YO-3KAA, YO3KSD.
YO4CT, YO4WU, YO4KCA.
YO5LC.
YO6AW, YO6XI.
YO7DL, YO7DO, YO7DZ.
YO8CF, YO8DD, YO8RL, YO8KAE, YO8KAN.
YO9CN, YO9IA, YO9VI, YO9WL.

New members will be periodically made known.

Foreign Radio Amateurs completing the required conditions for the award during a YO Contest, may apply for "Honorary Membership" of the YO DX Club.

YO-LC—WORKED YO LARGE CITIES

There are needed a number of contacts with YO stations residing in the large cities of Rumania:

Alexandria, Arad.
Bucuresti, Bacau, Baia Mare, Birlad, Botosani, Brasov, Braila, Buzau.
Calarasi, Cimpina, Cimpulung Muscel, Cluj, Constanta, Craiova.
Deva.
Fagaras, Focsani.
Galati, Giurgiu, Gheorghiu-Dej.
Hunedoara.
Lugoi, Lasi.
Medgidia, Medias.
Oras Gheorghe, Oradea.
Petrosani, Piatra Neam, Pitesti, Ploisti.
Resita, Roman, Rosiorii de Vede, Rimnicu-Vilcea.
Sibiu, Sighetul-Maramatiei, Sighisoara, and Suceava.
Timisoara, Tirgul Mures, Turda, Tulcea, Turnu-Severin.

Only one contact is allowed with each of the cities mentioned above, regardless of band, or mode. Class III., 10 cities; II. 20, I. 30. Valid contacts after 1/1/60.

YO-NC—WORKED NAMESAKE CALLS

This award is issued for at least five two-way contacts between partners having the same personal 1, 2 or 3 call letters after the district (or state) figure.

For instance: YO3VN, HG9VN, OE1VN, W6VN, SM5VN, etc.

The same station may be worked but once.

Amateurs having a call sign with two personal call letters after the figure must make also a "namesake" contact with a YO station.

YO-5 ON 5—WORKED 5 CONTINENTS ON 5 BANDS

There are needed 5 two-way contacts with 5 DX continents, each on a different band.

There are 6 continents: Asia, Africa, Europe, North America, Oceania and South America.

Own continent does not count for this award.

Additionally are needed a number of YO contacts as follows: DX Stations, 2 YO contacts. Valid contacts after 1/1/60.

YO-10 BY 10—WORKED 10 YO ON 10 MX

There are needed 10 two-way contacts with 10 YO stations on 10 metre band (28 Mc.) after 1/1/58. A YO station may be worked but once, regardless of the mode of the contact.

(Other awards of this series will appear in a later issue.—Ed.)

☆

Amateur Radio Hall of Fame Announced

An International Amateur Hall of Fame is being organised to provide permanent recognition of individual contributions made by Hams around the world to the advancement of Amateur Radio.

Each year five Amateurs will be honoured by having their names and calls inscribed on a plaque to be displayed on the premises of the International Amateur Radio Club in Geneva, Switzerland. Each of the five will receive a replica of the plaque.

The five Amateurs will be selected from nominees submitted by fellow Amateurs from all parts of the world to a board of distinguished judges, themselves internationally known to the Ham fraternity. Nominations will be called for in the following fields of activity: (a) Advancements in electronic techniques and equipments; (b) Traffic and DX activity; (c) Achievements in exotic phases of Amateur Radio, i.e. Moonbounce, Oscar, Space Probes; (d) Emergency and Disaster communications; (e) Development of Amateur Radio. Nominees may be any man or woman holding a Radio Amateur's licence issued by a recognised authority in a member country of the I.T.U.

As a public service the Hallicrafters Company will provide the plaques and will donate advertising space for the announcements during the programme.

Amateurs everywhere are invited to join in honouring those Amateurs who have made significant contributions to the art in their respective fields by submitting their names, calls and a brief outline of accomplishment by December 31, 1966, through their Divisional Secretary, to Dorothy Strauber, K2MGE, Secretary, International Amateur Radio Hall of Fame, 12 Elm Street, Lynbrook, N.Y. 11563.

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★ **HALLICRAFTERS SR150 Transceiver,** a.m., c.w., sideband	**$481.25**	,, ,,
★ **HALLICRAFTERS SX111** Amateur Band **Receiver**	**$160.00**	,, ,,
★ **HALLICRAFTERS SX107** General Coverage **Receiver**	**$62.50**	,, ,,
★ **HALLICRAFTERS SX122** De Luxe General Coverage **Receiver**	**$533.33**	,, ,,
★ **HALLICRAFTERS SX146** latest selective sideband **Amateur Receiver,** matches HT46 Transmitter	**$450.00**	,, ,,
★ **HALLICRAFTERS HT46** full coverage **Amateur Transmitter,** transceives with matching SX146 Receiver	**$507.00**	,, ,,
★ **SWAN T.C. Units,** suit SW240 and SW350	**$60.00**	,, ,,

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		K5/15 (2 req'd)
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VHF

Sub-Editor: CYRIL MAUDE, VK3ZCK
2 Clarendon St., Avondale Heights, W.2, Vic.

Well it's news time again and I hope that all the v.h.f'ers I heard giving numbers for the R.D. Contest have sent in their logs. It appears from the notes from Interstate that most v.h.f. Amateurs are preparing for the summer months with new gear and higher power. I wonder if those who plan to work DX this summer on 2 mx would like to let me know their normal operating frequencies so that the chaps in other States will know where to look for them. If I get a satisfactory response I will list them in "A.R." Those planning to operate 6 mx during the coming DX season are requested to read the letter regarding 6 mx operation in Channel 0 service areas that appeared in "A.R." and in "Electronics Australia," Feb. 1960, pp. 109, 110.

73, Cyril 3ZCK.

NET FREQUENCIES

The following net frequencies are known to be in use within Australia:—

1.825 Mc. a.m.

28.22 Mc. a.m.; 28.60 Mc. s.s.b.

52.525 Mc. f.m., international 6 mx net frequency; 52.90 Mc. a.m., W.I.C.E.N.; 52.656 Mc. f.m.; 52.765 Mc. f.m.; 53.032 Mc. a.m.; 53.20 Mc. a.m., W.I.C.E.N.; 53.982 Mc. a.m.

144.05-144.15 Mc. a.m., Oscar frequency channel; 144.050 Mc. f.m., VK3 channel X repeater; 144.1 Mc. a.m.; 144.188 Mc. a.m.; 144.5 Mc. a.m.; 145.854 Mc. f.m., channel A; 146.000 Mc. f.m., channel B; 146.146 Mc. f.m. channel C; 147.8 f.m., VK3WI link; 147.950 Mc. f.m., VK3 channel Y repeater.

435.00 Mc. f.m.

It would be appreciated if people forming their own private nets would use one of the frequencies listed above so as to reduce the interference caused by operating within the limits of the receiver pass band. If you have any queries the VK3 Division would be quite willing to assist you. If any net frequencies are not listed, the V.h.f. Publicity Officer, Cyril 3ZCK, would like to receive full details so that the list can be amended. Please send all details including area of operation, frequency, type of transmission, polarisation, number of active operators.

VK3 V.H.F. CONVENTION

The VK3 V.h.f. Group's third annual Convention will be held over the week-end 8th and 9th October. Saturday's events will be held in the Moorabbin area close to the QTH of Jack 3ZJF. On Sunday, the headquarters will be the Mornington Youth Club Hall close to Jim 3ZJM. Full details can be obtained from Peter Wolfenden, VK3ZPA, 423 Pascoe Vale Rd., Strathmore, or phone 379-5206.

OSCAR NEWS

Euroscar, the German satellite, is undergoing balloon tests in Europe at the moment and will be despatched to the States shortly. The satellite will carry a translator and a 432 Mc. beacon. The translator frequencies will be: in, 144.05 to 144.15, and out, 145.85-145.95 Mc. The orbit will be similar to Oscar III. and it should be in orbit some time in the New Year.

Australis, the Australian satellite, is well under way. At the request of the Oscar organisers the Australis beacon will now transmit the call of HI instead of VK.

Australis frequencies are 144.050 to 29.450 Mc., the package will be sent to the States later this year and should be launched by the middle of 1967.

HUNTER RIVER BRANCH

52 Mc.: This band is very quiet, only the locals on the week-end skeds at 10 a.m. Under fair conditions, Barry 2ZUB can work a few Sydney stations. Some of the boys are working on new converters or tx's, getting ready for the summer months, also for our Field Day in October. Kev 2ZKW has started to build a **blockbuster** for this band and has wound all the transformers for the power supply. He has even wound the modulation transformer. Mac 2ZMO has also started on a small 2E26 rig for this band.

144 Mc.: This band has also been quiet, most evenings. Tony 2ZCT did well in the R.D. Contest, 154 contacts. Also as there was a v.h.f. contest run by the VK2 Division of the W.I.A. at the same time as the R.D. Contest, this also helped. Others heard with fair scores were Colin 2YJ, Gordon 2ZSG, Dave 2ZFR, and also heard during the contest were 2ZFX, 2ZWM, 2ZMO, 2ZKW and others.

Sydney has been heard at times and worked by some who have good QTHs. Kevin 2ZKW has been working on mobile gear, plus a new rx. Dave 2ZFR has had rx trouble and study has also kept him off the air quite a bit. New Ham in Raymond Terrace is Bob 2ZGU who only got his ticket recently and is building gear. Mac 2ZMO has finished building the new tx for Ron 2ASJ. 73, Mac 2ZMO.

NEW SOUTH WALES

The biggest event to have taken place for some time was the R.D. Contest. The contest soon developed into a dual between Tony 2ZCT, Chris 2ZDD and myself 2ZSK. At the moment it appears that 2ZCT is first, 2ZSK 2nd, and possibly 2ZDD 3rd. Let us all hope that there will be a section for limited licensees in next year's contest, which will allow the Z call to participate for his State. If anyone has ideas on this subject I for one would be quite interested to correspond with them, as no doubt F.C.C. would also like to hear your ideas, and remember brother Z calls, if you don't express logical comments on this matter, we may never see a national section for this contest—the most important of the year.

The August meeting of the Group was well attended, the lecturer for the evening being Lionel 2ZLD who removed the mystery from printed circuit boards and their design. This was a very good talk and practical demonstration and I am sure that everyone present learnt something.

The V.h.f. Group's Morse training programme on 2 mx is proceeding very well due to the efforts of Mick 2ARF, Norm 2PQ and our co-ordinator Alf 2ZIW. This session commences at 2000 hrs. local time each night except Sunday. The call sign used is 2BWI and frequency is approximately 144.75 Mc.

There is still a good deal of activity on 2 mx each night. This of course is very good and it is hoped by the committee that it keeps up. Remember, if we don't use our bands, we could lose them.

The arrangements for the New Year's Field Day are almost complete. There has been a slight change in scoring in one zone. This won't make any real differences however and final rules should appear next month.

There is another net frequency in operation. This time it is the Wooden Spoon net who seem to have chosen 144.188 as the operating channel. The net is growing rapidly, there being about 20 members now, and growing bigger all the time. The group also has the North Shore Radio Club, 2ZYF This call is used whenever a group goes portable on field days, etc., so as to have no particular call sign favoured. It is also useful in contests and for other special occasions.

We also have another club call sign on the air, namely the Lakemba Radio Club 2BLR. Keith 2ZVL has been heard using this call on several occasions, so it appears that a rather old club is being revived again. 73, Stephen 2ZSK.

VICTORIA

Activity over the past month has shown quite an increase especially on 6 mx where you can find quite a number of stations operating at all times of the day and night.

2 mx fox hunts and scrambles are still drawing the numbers and appear to be gaining popularity. For the interest of Interstate visitors to Melbourne, the run of activities is as follows each month: 2nd Sunday at 2045 hrs., 2 mx scramble; 3rd Wednesday, 2000 hrs., V.h.f. Group meeting; 4th Wednesday, 2000 hrs, 2 mx fox hunt. Anyone wanting further information on these functions can telephone Cyril 3ZCK in Melbourne on 317-7579.

During the coming summer months a series of field days will be held. All frequencies above 52 Mc. can be used. The dates of field days are: Oct. 23, Nov. 20, Dec. 18. January to be decided, Feb. 11-12 (N.F.D.), March 19. See you all at the VK3 Convention, 73, Cyril 3ZCK.

QUEENSLAND

V.h.f. activity in VK3 has been impressive during the last month. Seventeen members attended the monthly V.h.f. Group meeting at which some important questions were resolved. Results of the Sunshine State Contest were announced during August and it was noted that there was about three times the activity on the v.h.f. bands as there was on the h.f. bands.

Visitors to Brisbane during the latter part of the month included Reg 7RL and Bob 4ZRG. Roy 3ZOM was in and out of Brisbane a couple of times but was mostly heard from 4ZLG's shack. Roy 4ZRM has a new 417A 144 Mc. converter which seems to be working extremely well. Lloyd 4ZLO has been working Brisbane again from the Gold Coast. Bill 4ZBD has been in the text books looking for a suitable stacked array for 432 Mc., while Tom 4ZAL is at last a good signal on 144 Mc. with his driver.

The latter part of October should bring the first DX openings of the season on 52 Mc. However, this year many more VK4s will be looking for openings on 144 Mc. Maybe even 4RX will be on! 73, Peter 4ZPL.

SOUTH AUSTRALIA

Reminiscent of the summer DX season, the 1966 Remembrance Day Contest saw spontaneous activity from the moment the contest started until its completion. Characteristic, nonetheless has been the virtual non-existence of v.h.f. activity ever since. It would appear these days that unless a "special" is offering, the majority of v.h.f. Amateurs are just not interested in furthering the art within the confines of VK5.

Digressing from the v.h.f. bands somewhat, it was interesting to note that six out of the top seven logs to be submitted for the h.f. section are by operators drawn from the v.h.f. ranks and active members at that. They are 5EF, 5NY, 5KM, 5IZ, 5EK and 5ZE. The other high scorer in 5NN does appear on 6 mx mobile occasionally, therefore by some stretch of the imagination all seven could possibly be classified as v.h.f. operators.

The most recent bi-monthly meeting of the VK5 V.h.f. Group was held on August 5. The lecture was on Amateur Television and was most capably delivered by Maitland Lane, 5AO. The lecture was both practical and theoretical as Maitland had brought along his complete closed circuit system to demonstrate.

It would appear that 146 Mc. channel B f.m. has made its mark in VK5. Approximately 15 units have been commissioned into service and from all accounts the channel is always occupied. However, it has had the detrimental effect of reducing 2 mx activity on the lower end of the band. Whether this reduction in activity on the lower portion of the 2 mx spectrum is permanent or temporary remains to be seen. Nonetheless, the weather map watchers have never had it so free from QRM which will please them no end—well until the DX rears its head again.

Recently Peter 5ZKA has completed 4 x 7 element Yagis stacked for 2 mx. Peter has only managed to lift them 15 ft. off the ground level and as yet has not had the opportunity to assess their performance. However, he has also managed to acquire a 75 ft. free-standing tower and is presently working feverishly to erect it. Jim 5ZMJ at Port Pirie is currently working on a sideband rig for 2 mx. His 14 Mc. exciter is complete and awaiting a check-out. In the meantime the transverter is being constructed. Jim is anticipating that when he makes it on to s.s.b. his t.v.i. problems will be reduced, thus allowing him to come on 2 mx prior to his usual time of 11 p.m.

The latest information on the VK5 v.h.f. beacon tx's received from Bob 5ZDX is that they will be recommissioned in plenty of time before the DX season commences. Many Interstate Amateurs have become dependent on our beacons, but apart from VK6 we receive no assistance from beacons at all. Seeing the door is wide open in regard to obtaining licensing conditions, there is no reason whatsoever that beacons from VK2, VK3, VK4 and VK7 should not be heard throughout VK land. How about it fellows? 73, Colin 5ZHJ.

WESTERN AUSTRALIA

There has been in the past year a falling off in activity, possibly due to various members of the group being posted to the country. However, we have some new, keen, upcoming members and activity appears on the rise again. We hope this trend will continue.

Some people put the fall of activity to the f.m. channel. This is partially correct, but it has its merits as well as its demerits. We have found that working with one set of equipment on one fixed frequency with limited antennae such as whips, or at the best, three element beams and relatively low powers, quite long distances have been accomplished. This, I feel, is due to getting to know one's equipment and having all the equipment working properly and not having a lot of equipment working only partially. An example of this has been Yunderup to Perth with only mobile equipment and relatively low powers with unsophisticated antennae, also Bunbury to Perth.

The net frequency operation can, however, be carried too far by the use of only one set. Net operation has been found to be desirable. However, there is room for more net chan-

(Continued on Page 20)

SWL

Sub-Editor: D. GRANTLEY, WIA-L2022
P.O. Box 222, Penrith, N.S.W.

Following my comment on A.O.L.C.P. holders participating in the receiving section of the W.I.A. controlled contests, our contest manager, Neil Penfold, VK6ZDK, has written to me giving an official ruling on the matter. Here is the position. Any non-active Amateur may enter the receiving section of any W.I.A. conducted contest. For any queries regarding contests and results, please write to: Federal Contest Manager, Neil Penfold, VK6ZDK, 55 Moulden Ave., Mt. Yokine, W.A. My apologies for mentioning Jim 6RU as holding this position. On behalf of all our listeners, Jim, congratulations on your fine operating and scoring in the R.D. Contest.

AROUND THE SHACKS

Bryan Prosser, L6028, has recently returned from his holiday in VK5. On his return to the shack, he has been confined to 20 metres, but managed to hear VE3AIU, ZC4AK, ZS1IR, XE2CJ, XE2JJZ, HB9VW, FB8YY and VP7NZ on s.s.b., whilst 15 mx has been producing only Ws and a KC4. Conditions have improved on 40 mx, where many Ws and a call from FB8YY were logged.

Alan L6029 has been listening on 20 mx s.s.b. also, and reports DL4SL, F2PN, CP5BK, OA-4QW, CE6DQ and EA4DO.

Eric L3042 has been on holidays, following a series of trips around most VK call areas in the course of duty. We must realise that his duties with the QSL Bureau curtail Eric's listening time, just as well for most of us. Nevertheless, his log sheet still grows and a sample of his listings were LA4ZH/MM, K6BAG/6 and W6AMO/6 on 80 mx; K3WWF/MM, YV3FB, VR2DK, ZD8J, CM2QN, K2UME/MM, CO6PP, 4X4HF, W6ADN/MM, G6ZG and LA3GI on 40 mx. KG6AQA, YV5ACP, ZE-8JJ, VK9CJ, G6FO, 5A1TY, VE7BMC, CT1DJ, HK0AI, KZ5EX, UA2KAA, YU5AHM and SM-3WB were some of the 20 mx loggings. As a matter of interest, the logging of ZD8J on 40 mx was at 0700z via the long path. Inward QSLs for the month included FK8AH, FK-8AT, HA5KFR (3.5), OE3PWW (3.5), UA3KZO, VK0TO, VR2EW, VS6DS, VS9MP, W1EVT, ZB2AM, ZC4CI, 4X4BS, plus two Ws on 3.5

I would like to welcome Barry Snell, L3136, of the School of Signals at Balcombe, who is at present having trouble with his rx and asks for assistance in his attempts to rectify it. Don L2022, has now got his CR100 back to its normal healthy state, and is very pleased with its performance. Unfortunately, it was not in operation for the R.D. Contest, and the AR7 lost its b.f.o. at a crucial moment, thus relegating L2022 to the also rans for the event. Countries heard on 20 metres of late include VP5AR, VR4LM, VK0MI (at last), 5W1AZ, HC1BM, 1T1AUT, EA5CH, YS2LE, ZS6TE, EA7KE, GB3WIJ, GC2FMV and 9V1JW. At last some inwards QSLs. These being from VK8AX, 5W1AZ and VP2KJ (Nevis Is.)—total being 136 confirmed.

Over to Greg Johnston of VK7. Using his converter as described in "A.R." earlier this year, Greg turned in an outstanding score for the R.D. Contest. Duties as QSL manager for VK0MI take most of Greg's time, but this job is doubly tough for him due to the dozens of inaccurate s.w.l. reports finding their way in. Once again we stress the importance of valuable reports and accurate ones—this applies not only to reports for VK0MI, but for all cards sent out.

Alan Raftery, L5065, had a very good run in the R.D., and has rattled up a good score. Despite his concentrating on the R.D. and his studies, he had managed a couple of newies, these are PX1SS (QSL via F9JS) and IP1AA, whose locality is unknown to Alan. As a matter of general interest, L5065 names VKs 6RU, 9DJ, 2AHM and 3MO as being amongst the best signals and ops. in the phone section of the R.D. A late note from Alan tells us that QSLs have been received from OK1ADP, FO8BJ, VE7CE, EA3OT, VK9JO, OH2BS, KX-6BQ, UA0SK.

Warwick L3211, out of the R.D. through studies, managed to log VP7, ZS6, FB8, ZB2, CN8, 5W1, ZL5 and IP1GAI. His inward QSLs were from LZ1BZ, VS9AFR, 5Z4IR, ZC4RM. DM2AEC, UA0EH, UA4KHW, EA7HZ, UP2KAB and UC2BF with YK1AA for good measure.

Bob Halligan reports new countries heard, 9J2MM and ZF1GC, with confirmations in from UH8BO, LZ1BZ, PJ2MI, ET3WH and 6Y5AR.

Over to VK5, and Ernie Luff, who looks like being the next candidate for D.X.C.C. Using his newly acquired AR88D, Ernie has logged a large number of countries, including VQ-9EF, ZE2, TG9, SV1, F2, HR1, OH2, 7X2, GC5, ZS4, UP2, YS2, OD5, HC1, CR6, TI2, 9V1, EP2, YN6, MI8, ZS6, 5R8 and many others. Inward cards were received from DJ4OA, VE5LG, 9J2JC, VE6HM, JA3LE, HC5BZ, HH9DL, 9J-2VX, HR1JAP, ZS3JJ, VK0MI, VO1EL and 6Y5MJ.

Finally, I wish to acknowledge interesting tapes from Mac Hilliard, Bryan Prossor, Doug Head, and a really informative "round robin" from four of the I.S.W.L. members resident in G land. Thanks chaps.

VICTORIA

S.w.l. Group news, as supplied by Ian Woodman, Secretary. The Group held the annual election and had a slide show on Central Australia at the August meeting. The Sept. meeting was devoted to an excellent film evening, supplied by the Forestry Commission of Vic., and the agenda item for the October meeting is "Transistors and Their Operation." Nothing has been arranged for Nov., but our usual party will take the Dec. meeting.

The Group set up a listening station for the R.D. Contest, manned by six of the keenest members. Early Saturday afternoon they commenced to erect the aerials. By starting time, the sky above the caravan had so much wire in it that it became a hazard to low flying birds. The Contest got under way with five members operating in the receiving section, and one in the tx (v.h.f.) section. Unfortunately all the receivers were flattened when the tx was switched on, and our stalwart A.O.L.C.P. holder narrowly escaped a lynching. However, it was a most enjoyable Contest, and the Group succeeded in turning in quite a presentable log.

ADDRESS FOR FUTURE NOTES

Due to the fact that in the near future I will be moving QTH to either the lower Blue Mountains, or further south, would you please address all mail to me as from this issue to: Don Grantley, P.O. Box 222, Penrith, N.S.W. That's all for this month, 73 de Don L2022.

DX NEWS

QSLs for IC1KDB go to Box 336, Naples, Italy. VU2DIA still active on 14015, 14303 and 14045 from 0001z-0200z, QSLs via VU2DI. XP1AA heard on the bands recently is legitimate and is based in Greenland. BV1USF will QSL via W2OCN. According to the I.S.W.L. magazine "Monitor," VU3KS and ZA2AA/YU1 are not legitimate. 6W8DD has been heard on 7018 c.w.

I note in the personal notes, Alan Raftery reported IP1AA and Warwick heard IP1GAI. However, only news I have from that area is that Dom IT1TAI was to operate from Pelagic Is. as IL1TAI, actual QTH on Lampedusa Is., provided the A.R.R.L. would grant separate status. Where will it all end?

Did anybody log HV3SJ on 14230 in the past few months? Tape to hand this day says it was a special call allotted to WA6ZWL.

Further to the above memo on IP1AA, latest to hand is that the operator is OX5AH, QTH Thule, and operating on a special permit with 500 watts on 14110.

IT1AD has been heard on 14034 c.w., QSL to Box 641, Ulan Bator, Mongolia, whilst JT1AJ is on 14053, QSLs to Box 639, Ulan Bator.

Heard at 1500z, ZP9AY's manager is W2CTN. UW0WH is in Zone 18. QSL manager for ET3AC is W4NJF, who asks that either a s.a.s.e. or I.R.C. be included with all reports.

The following are new I.S.W.L. members, and QSLs for these chaps can be sent via that bureau: G2CMK, K1TEV, W6KWU, VE-6AKP, VE6AGO, WB2RLA, VE6WU, WB2CKS, W2PCJ, W1WFZ, HK4PZ, HP1JC, W8JAQ, G3UMA, G3FQC, G6DK. QSLs for ZD8J go via K4LJV. Address for QSLs to VS6JC is S/Sgt. Jack Cooper, C/o. 9V1 Bureau, Box 277, Singapore. VU2FN's QSLs go to the Canadian Embassy, New Delhi, India.

AWARDS

The QRP Amateur Radio Club, formed with the object of demonstrating that the use of limited power (100 watts or less) can create less QRM on the Amateur frequencies, and that we are still able to enjoy our hobby by using the minimum power necessary to complete a QSO. S.w.l's are considered as low-power operators, and Amateurs receiving s.w.l. reports may use these for award purposes in lieu of two-way QSOs. This is the only instance I know of where s.w.l. reports can actually assist an Amateur. Five awards are issued, and all are available to listeners. Briefly, and in the s.w.l. interest, they are: QRP-25 issued to s.w.l's who have confirmations from 25 QRP club members anywhere in the world. Endorsements are issued for 50, 100 and 200 plus every additional hundred. Can be also endorsed for working 10 members on bands above 50 Mc.

No. 2 is the W.A.C./QRP, which is issued for contacts or s.w.l. reports on stations in all six continents. No. 3 W.A.S./QRP requires a card from each of the 50 States which make up the U.S.A. No. 4 is the D.X.C.C./QRP. No. 5 is the 1,000 mile per watt award. This may be collected by s.w.l's if they hear a station at such a distance and using such power, that the distance divided by the power input is 1,000 or more.

Cost of the first four awards is one U.S. dollar or 10 I.R.C's each, while the 1,000 mile award costs the DX station three I.R.C's or one I.R.C. and a stamped addressed envelope. Club members are issued awards at half rate. All club members are issued a number which is not published, but transmitted in QRP contacts. If you have heard this number in a QSO, then a QSL card is not necessary for the awards, however if you do not have this number, then the QSL must be produced, and power shown. The A.R.R.L. countries list applies to all applications, and for all awards other than the QRP-25, your QSLs can be from any station using less than 100 watts, regardless of whether he is a club member or not.

Many VKs are club members, and they can be identified in a QRP QSO by the use of the suffix, example VK4UC/QRP.

The preceding information has been furnished to me on behalf of interested listeners by Chas. Taylor, VK4UC, who is a member of the club, and who is the holder of the W.A.C./QRP, and applicant for the 1,000 mile award. Thanks to you, Chas, for this information, and I for one will be looking for the QRP stations.

VK-ZL CONTEST

Two things to remember here are that we may log ZL as well as overseas stations, and that we can log each station twice on any one band, once on phone and once on c.w. You must keep a separate log for each band and each call area of W, JA, SM and UA count as a separate country and bonus points can be claimed for them.

Entries from VK must be sent to the N.Z. A.R.T. Contest Manager, 152 Lytton Rd., Gisborne, New Zealand, by 31st December.

High scores and new countries are usually the thing in this Contest, full rules for which appeared in "A.R." of July 1966.

That winds it up for this month, 73, de Don L2022.

☆

V.H.F. NOTES

(Continued from Page 19)

nels on the bands than have been allocated to us.

With the rumoured advent of the availability of high band f.m. equipment, it would be good to see some 2 mx channels in operation. But it has been suggested that people normally calling CQ should endeavour to do so on the hour, thus enabling people tuning the band to know what activity is liable to be present.

Sunday, 7th August, was an interesting day on the f.m. net. Ken 6ZBT and Barry 6ZCF operated portable from Bluff Knoll parking area. Wayne 6ZDD and Wolf 6ZAY were portable on Mt. Solus and managed to work them. A distance of 170 miles.

From Mt. Solus other stations worked included Pat 6PH (Narrogin), Aub 6XY (Wickepin), Danny 6ZFF (Bunbury), Lance 6LR and Jack 6BU (Yunderup). Perth stations heard included 6ZEP, 6WV, 6ZDB, 6ZCL, 6ZEK, 6ZDS, 6ZFM, 6QJ. 73, 6ZEK.

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CONTEST CALENDAR

1st/2nd October: VK-ZL-Oceania DX Contest (Phone).
2nd/3rd October: W.A.D.M. Contest (c.w.)
8th/9th October: VK-ZL-Oceania DX Contest (c.w.)
15th/16th October: R.S.G.B. 21/28 Mc. Telephony Contest.
22nd/23rd October: "CQ" "World-Wide" DX Contest (phone)
29th/30th October: R.S.G.B. 7 Mc. DX Contest (phone)
12th/13th November: R.S.G.B. 7 Mc. DX Contest (c.w.)
13th/14th November: International OK DX Contest (c.w.)
19th/20th November: R.S.G.B. 2nd Top Band (1.8 Mc.) Contest.
26th/27th November: "CQ" "World-Wide" DX Contest (c.w.)
10th December to 15th January: Ross A. Hull Memorial Trophy V.H.F. Contest.
11th/12th February: John Moyle Memorial N.F.D. Contest.

VRC

Some important re-organisation is taking place in VK3. Circumstances are not the same in every Division so it does not follow that the VK3 re-organisation is a new pattern others must follow. State Supervisor Howard Rides and a keen committee are tackling their particular problems in a well thought-out way. They have prepared Articles of Association for the Youth Radio Clubs of Australia (Victorian Division), an organisation which is to be basically self-controlled and self-financed by fees (about one or two dollars) collected from the participating clubs or non-club participants. The exceptions to this independence are that the name of the State Supervisor (elected by the Y.R. Clubs) is to be submitted for approval to the W.I.A. (VK3), the auditors are to be from W.I.A. (VK3), and in the event of failure, funds are to revert to W.I.A.

It must be understood that this is in no sense a break-away movement and full co-operation in both directions is to continue. The whole question needs more discussion when the details and implications have been thought over. A separate organisation would absolve the W.I.A. from any legal responsibility (but pass it on to the shoulders of the new organisation) and allow enthusiasts free development of ideas without reference to a busy W.I.A. Council. On the other hand, the aforesaid busy Council could, under the new arrangement, tend to forget Y.R.C. business altogether—it should be remembered that, although the main business of a W.I.A. Division Council should be its work for senior members and the W.I.A. generally (and these Council members are spare-time workers already well burdened), the Youth Radio Clubs can be given the support of the Division in many ways without involving the time or money of the W.I.A. Council.

While attending a Conference (on other matters) in Melbourne, I met a teacher from Aquinas College in Perth who gave me some details of Bro. McKenna's organisation at the College. What a pity Perth is so far away—it sounded so impressive that I would like to visit.

I am personally keen on the Duke of Edinburgh Award Scheme and I am glad to hear that soon there will be definite views of how Y.R.S. achievements fit into the pattern of Gold, Silver and Bronze Awards. Do Club Leaders have these in mind for development?

VK2 jottings are plentiful as usual. Y.R.S. certificate holders are to be allowed to purchase from the Divisional Disposals Store. Pierce 2APQ suggests that advanced clubs might participate in the Australis Project and should telephone him if interested. A new certificate for Radio Monitors is suggested (i.e. listening in a systematic way through specified s.w. segments). A total of 305 Elementaries have been awarded so far in VK2 alone. Alan Watson, secretary of Christmas Island Amateur Radio Club, has sent $7.15 towards Y.R.S. expenses—even its adult members are sent for Y.R.S. certificates. Bruce North, of Kiama High, has full A.O.C.P. and joins the small group of schoolboy A.O.C.P's The experiment at Mittagong Training School for Boys (trying the effect of an absorbing interest in Electronics) is still proceeding but could benefit from some help in the way of parts, duplicated sheets and any instructional material. Mr. Jack Standard (Epping Boys' High) has the loan of a good 150w. a.m. tx and should now be on the air. (All interested in Y.R.S. should gather on 80 mx Wednesdays at 1800 E.S.T.)

Camp Technology will be on again at Christmas—enquiries should be made early to Mr. T. Mayne, 16 St. Aidan Ave., Dundas. Donations are gratefully acknowledged from Milton 2LI, Commonwealth Electronics, A.W.A., General Accessories, S.T.C., O.T.C. and Mr. Hope. New clubs are formed at Homebush Boys' High and Singleton High (thanks to Mr. Horsfield, who was a 1965 member of the Sydney Teachers' College Radio Club). Jan 2BJO will help at Singleton and they should be a transmitting club before long. Max 2BMK reports that Scone High should be active soon—he is building a tx for it. 73, Ken 1KM.

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Publications Committee Reports

At the September meeting the Committee considered correspondence from the Secretaries of VK2, VK4, VK5 and VK7, and a verbal report from VK3, all dealing with the annual mass deletions on those unfinancial. It was decided that for this year the re-instatements will take effect from the October issue instead of January, as was suggested. Later in the year consideration will be given to the suggestion from VK5 that the Divisions be charged the costs involved in making the re-instatements.

Correspondence on other matters was received from VKs 2ZTM, 3ZOF, 3ASC, 4AT, 4QL and Greg. Johnston. Mrs. Shawsmith wrote to advise that Al 4SS is on the sick list and would be unable to do the DX Notes this month.

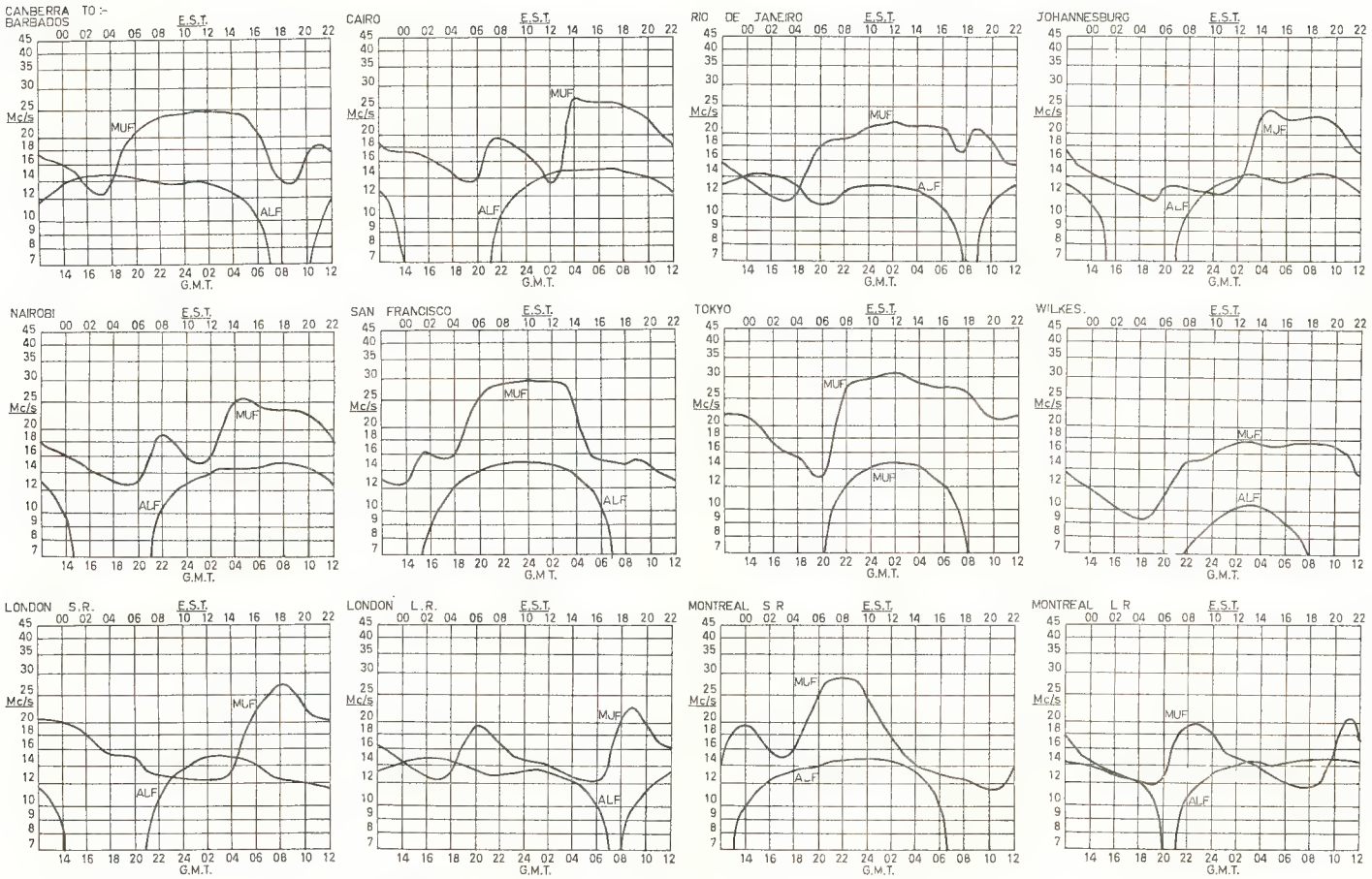
Technical articles were received from VKs 1AU, 2PY, 2ZAI, 3UG, 3XY, 3ABP, 3AHT, 3ASC, 5ZDX, 5RG and Greg. Johnston.

Sideband Notes have been omitted this month as they arrived too late for us to prepare drawings.

During the last month a number of letters were received from individuals advising changes of address for the magazine. These have been sent to Divisional Secretaries, to whom they should have been originally addressed. The only changes of address to be notified to "A.R." are those for direct subscribers and the Call Book. Call Book alterations must also be notified to the P.M.G. Department.

The Call Book is progressing to schedule and at this time no delays are foreseen.

PREDICTION CHARTS FOR OCTOBER 1966



(Prediction Charts by courtesy of Ionospheric Prediction Service)

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Frequency response	200 to 10,000 c.p.s.

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FEDERAL AND DIVISIONAL MONTHLY NEWS REPORTS

(SEND CORRESPONDENCE DIRECT TO DIVISIONAL REPORTER NAMED AT PARA. END)

FEDERAL

As mentioned in these columns a month or so ago, it was reported that two Amateurs were going overseas, and would endeavour to find out a little about what is happening in other countries as far as Amateur Radio is concerned. Allan Elliott, VK3AL, is still away at the time of writing and we are looking forward to hearing of his observations after his visit to Japan. Dave Jeanes, VK2BSJ, has returned from vacation in U.S.A. West Coast and some of his comments may be of interest.

His comments on the attitude of the American Amateur to the future of Amateur Radio is particularly interesting, and to quote him: "No Ham that I spoke to was concerned about I.T.U. or the future of the Ham bands. They are so convinced that the government is well aware of the part they play nationally, and internationally, that they seem confident that the bands will be retained, if not expanded. Listening in locally, I can appreciate what they mean. There are literally thousands of them on the air at any one time. Their nets are something to hear. The skill and speed which they pass traffic is amazing. Frame patching is part of life and with calls for military personnel, etc., they, in fact, render an effective part in the communications set up."

This apparent complacency is something to be marvelled at, especially in the light of all the official comments that one hears, and whilst this state of affairs may be very good, and promising for the Amateur population in U.S.A., the same situation and appreciation of the Amateurs' worth will not necessarily apply in less fortunate countries with limited Amateur populations. However, the next I.T.U. Conference will tell the tale.

Dave also spoke with Bill Orr, W6SAI, at the Arnac factory and acquired some information on launching details for our "Australis" people. Some of the shacks he visited were K6JDF, W6LDD, WV6JGS, VE7BJ, VE7AKB and VE7BHH. Reading between the lines, Dave apparently had a very pleasant tour and Federal Executive are indebted to him for the time he took to discuss some mutual problems —thanks a lot Dave!

HANDBOOKS AND REGULATIONS

As mentioned before, all work has been completed and all that requires to be done is the drafting of the necessary regulatory changes by the Commonwealth Attorney General. All the submissions have been placed in this Department's hands but, as can be well understood, pressure of parliamentary business during the Budget session has slowed up the final release of all details.

— . . . —

FEDERAL QSL BUREAU

The Czechoslovak Central Radio Club will again stage the International OK DX Contest from 0000z to 2400z on Sunday, 12th Nov. All bands 1.8 through 28 Mc. may be used and the Contest is for c.w. only. Full rules and sample log sheets may be obtained from this Bureau.

From 1st August the address of the W3 QSL Bureau is Jesse Bieberman, W3KT, RD1, Valley Hill Rd., Malvern, Pa. 19355, U.S.A.

The new address for the DL4/DL5 QSL Bureau is M.A.R.S. Radio Station, Hq. 93rd Signal Bn., A.P.O., New York 09175, U.S.A.

The XL (or Excellent) Radio Club advises of its aims and conditions of membership. This is based on long term service and excellent achievements in the field of Amateur Radio. Full details of the membership requirements may be obtained from this Bureau or from OH2YV. There is no membership fee.

The Radio Club A.P.A.S. is staging a celebration to mark the twentieth anniversary of its foundation. The festivities are scheduled for October and include an official station on the air continuously for 24 hours. This club, which is associated with the R.E.F., caters particularly for the listener section of that body.

The QRP Radio Club is conducting a publicity drive to increase its membership above the 3,000 mark. This active Club has members in all continents and in over 40 countries. It is an organisation of Amateurs who accept the challenge of operating under low power conditions to effect less QRM on very crowded Amateur bands. Hundreds of its members are seasoned and veteran operators who depend on their operating ability and knowledge of radio and band conditions to effect contacts rather than to exercise brute force with high power and cause needless QRM. The club sponsors contests at regular intervals and a series of worth-while, attractive awards for operating ability are available.

Membership is restricted to stations employing a top power of 100 watts or less, and lifetime membership costs only one dollar (U.S.) or 10 I.R.C. This includes the receipt of the club's quarterly newsletter for the first year of membership. Renewal of subscription for the newsletter is one dollar or 10 I.R.C. annually. This club, which already has a score of VK/ZL members, should make great appeal to VK Amateurs considering our power limitations. All membership enquiries should be addressed to the writer, or to Fred Behrman, K7LNS, 3425 King Rd., Milwaukie, Oregon, U.S.A.

Traffic through this Bureau for August reached the all-time monthly high of 9,146 cards. Following on 8,000 for each of the three previous months, a record year seems assured.

—Ray Jones, VK3RJ, Manager.

— . . . —

NEW SOUTH WALES

A larger than average attendance—about 80—turned out for the VK2 Division's monthly meeting on Friday, 26th August. In the absence of the President (Tom VK2OD), who had a dose of the 'flu, the chair was occupied by the Senior Vice-President, Bill VK2YB.

The lecture, "Integrated Circuits—Past, Present and Future," delivered by Mr. Trevor Andrews, of the Fairchild Transistor Co., was a very topical one for the times in which we are living, and the lengthy question time afterwards was an indication of the interest shown by the audience. We would say that the large attendance was a direct result of the general and increasing interest these days in this particular subject.

As the lecturer pointed out, there has been such a remarkable change in the field of electronics since the advent of semi conductor devices, a mere 10 or 15 years ago, that it was impossible to even guess what the future held. Only a few years ago quite influential sections of the industry held the view that transistors would never take the place of valves; also that they would never operate above 3 to 6 Mc. However, there had been such vast technical advances that transistors were now available for operation in the 500 Mc. region, while even the most non technical person must realise that, to quote one instance, the success of the current space programmes revolved around the fact that valves have indeed been superseded to a very large extent by transistors. The building of computers was another field where transistors had come into their own, taking these instruments from their original standing of bulky electronic curiosities to the present stage where they were economic necessities.

The lecturer said that the output of integrated circuits in Australia over the past two years had risen from 50 to 180,000. The amazing increases in the use of semi conductor devices in such a short space of time had been assisted in large measure by improved methods of mass production.

Touching on what is perhaps the most important section of the art so far as we are concerned, Mr. Andrews said that manufacturers of communication equipment had been slow to change from valves to transistors. However, a change was coming over the scene. A further pointer to what we may expect in the future was that, in the U.S.A. at the present time, the complete sound channel for colour t.v. receivers may be purchased (in large lots) for $3.50 each.

In moving the vote of thanks to the lecturer, Rex 2YA said Mr. Andrews had illustrated by his very fine lecture what wonderful opportunities awaited the younger generation who were about to enter the field of electronics.

While still on the subject of lectures, the Education Officer (Harold 2AAH) has lined up Syd 2SG to give the lecture at the October meeting, the subject being "Television Signal Generation." Syd has had many years' practical experience in the field of television. The lecture for November will be given by Mr. Ted Banstead, an A.W.A. engineer, on "Solid State Sideband."

Visitors at the meeting included John ZL-3AAU and Jim ZL3LY. The Hunter Branch was represented by Keith 2AKX and Tony 2ZCT, while Mr. E. Archibald, Superintending Airways Engineer from D.C.A., was also present.

The following applicants were admitted to membership of the W.I.A.: Full Members—B. H. Christensen (1ZBC), J. M. T. Davies (2AUD), R. A. Emmerton (2AUO), J. K. Gibling (2ZKG), S. G. Leatheam (2ZGL), R. G. Lukin (6ZDL), R. Mudie (2ZRQ), A. E. Peppercorn (1AEP); Associates—Geoffrey Campbell, D. P. Johnstone, J. E. Relph, W. Silberstein, F. Tubbs and R. R. Warleigh.

W.I.C.E.N. News: Peter 2AXJ informs us that the new 146 Mc. f.m. base station has been obtained and installed at 2WI Dural, and since then reports have been received of better coverage. This has released 2KJ's tx, which had been installed temporarily at Dural. Stations are now beginning to appear on the net from country areas. There have, of course, always been several stations in Orange, but 2IE (Bathurst) is now a regular, and 2ZFG is to appear from Forbes and 2ZJX is moving from Orange to Wongabin, near Dubbo. There will be another new station in Orange as soon as the call sign has been issued.

Other new stations over the past couple of months include 2ZDN and 2BJO (Hunter Branch), 2TX and 2ASA (Central Coast), 2ZZR (Berry) and 2GE, 2ZGB, 2ZRZ, 2ZGX, 2ZAF and 2ZJS from the city.

For the information of those interested in W.I.C.E.N. activities, the following frequencies are those for N.S.W.: Two Metres (f.m., plus or minus 15 kc. peak deviation)—Channel A, 145.854 Mc.; Channel B, 146.000 Mc.; Channel C, 146.100 Mc. Six Metres (f.m., plus or minus 15 kc. peak deviation)—Channel A, 53.920 Mc.; Channel B, 53.950 Mc. (a.m.); Channel 1, 53.786 Mc.; Channel 2, 53.826 Mc.; Channel 3, 53.866 Mc.

The QSL Officer (Syd 2SG) reported that during the past month there had been 2,250 inward cards and 1,736 outwards. Syd then drew attention to the fact that he had held the position of QSL Officer for the past seven years and he considered that that period of time was long enough to be in the one job. He therefore served notice that he would be resigning the position in three months' time. Syd made no secret of the work that went with the job of QSL Officer, and said that time spent on QSL affairs, so far as he was concerned, amounted to about 12 hours a week. He was giving three months' notice so that another QSL Officer could be found, and he offered every assistance in the training of anyone interested in the position.

In our opinion, the running of the QSL department would be one of the more onerous tasks among our Divisional activities. While Syd has been in charge the numbers of cards handled have broken all records, involving much extra work. Therefore, the members generally, and particularly those who specialise in working DX, certainly owe both Syd and Ted 2ACD a debt of gratitude for their efforts.

Cogitating on the necessary qualifications of Syd's successor while in a facetious frame of mind, one could almost visualise the following advertisement appearing in the Positions Vacant column: Wanted, lady or gentleman, dedicated to W.I.A. affairs, not afraid of work, a thick enough hide to withstand abuse, ability to decipher indecipherable call signs, world-wide geographical knowledge (including fly-specks on the map sometimes occupied by DX-peditions). Remuneration: You kidding??

The Youth Radio Scheme was well represented at the meeting when, in addition to the Supervisor (Rex 2YA), Keith 2AKX (Westlakes Radio Club), and Stan 2EL (Canterbury Scout Troop instructor), several lads

SILENT KEY

It is with deep regret that we record the passing of:

VK2AKP—Vic. Holmes.
VK3CA—Clive Hughes.
VK3YV—Howard Wohlers.

presented themselves for the handing over of various prizes and certificates they had won as a result of their studies. A "competition" conducted during the evening on behalf of the Y.R.S. was won by 2WP.

A group of ladies, organised by Mona 2AXS and assisted by Council member, Hebe 2AOK, and XYLs of Council members 2ZRD and 2CH, have commenced a new innovation at Wireless Institute Centre—providing (for a very small charge) afternoon teas on the second and fourth Saturday of each month. These are served between 3 and 4 p.m. to coincide with the opening of the disposal store. The first effort proved very popular and the larger than normal Bulletin-folding team very quickly took care of the scones, strawberry jam and cream. Ladies who would like to assist and at the same time have an eyeball QSO with the other ladies are asked to phone Hebe on 55-5660. OM's could help to make this venture a success by patronising it. In addition to assisting the Divisional financially, we commend this as an excellent opportunity for members and their XYLs to have a social chat over a "cuppa."

Continuing with social matters, Ivan 2AIM reported that the theatre party he had been organising for 8th Sept. to see the film "My Fair Lady," had resulted in a complete sell-out of 100 tickets, with 70 people booking for the theatre supper after the show. It is hoped that another party will be arranged when the opportunity occurs.

Reference was made at the August general meeting that a count of participating VK2 stations in this year's R.D. Contest tallied 140. It will be interesting to see just how many of this 140 have done the right thing by their Division and entered a log. With full support it was thought we would have a good chance of landing the trophy for the first time. However, if some of you have done what many have done in other years—left it to the other bloke—then we will have two chances of winning—our own and Buckley's.

We understand that the Westlakes Radio Club has been recommended for the 1965 Institute of Radio and Electrical Engineers Efficiency Pennant. This award is made annually to the most efficient Y.R.S. Club, and we are sure that we echo the sentiments of all when we say "heartiest congratulations."

VK2 DIVISION

CRYSTAL LIST

5030, 5035, 5127.5, 5165, 5205. 5235, 5285, 5295, 5327.5. 5335, 5360, 5385, 5435, 5437.5, 5485, 5545, 5582.5, 5587.5, 5645, 5660, 5687.5, 5730, 5740, 5780, 5782.5, 5815, 5820, 5860, 5892.5, 5907.5, 5950, 5955, 5995 kc. In FT243 holders, $1 each or in groups of five for $4. 6 Mc. range next month.

Goods listed for sale by the VK2 Division are available to W.I.A. members of any Division. Please address inquiries to Radio Equipment Store, 14 Atchison St., Crows Nest, N.S.W.

LECTURE TAPES

No. 11—V.h.f. History, no slides or diagrams. (Ed. Tilton, W1-HDQ).

No. 12—Quad Antennae, 68 min., 20 slides. (H. Burtoft, VK2AAH and S. Molen, VK2SG.)

No. 13—Linear Amplifiers, 1 hr., 17 slides. (Bob Wilson.)

No. 14—Transistorised R.f. Converters, 1 hr., 12 slides. (Sid Molen, VK2SG.)

No. 15—The Spirit of Discovery, 55 min., no slides. Edwin H. Armstrong. (Recorded by H. Burtoft.)

Details in August "A.R.," page 19. Inquiries to Education Officer, Wireless Institute Centre, Crows Nest. N.S.W.

Tim 2ZTM and Joe 2ZOO landed back in Sydney about the end of August after a month spent touring right around Australia, covering nearly 10,000 miles in the process. At time of writing we had not sighted Joe, but the face fungus sported by Tim on his return makes us think of two possibilities—he is hiding from someone, or he is preparing for a job as Santa Claus over the Christmas period.

Gerald Sabin, one of the "pillars" on whose broad shoulders rests our Publications Department, has sent out an SOS for someone to give a few hours of their time, one Monday night a month, from about 6.30 p.m. Gerald would be delighted if you knocked him off his perch with offers of help.

To those who make a practice of reading only the disposals page of your Bulletin and then tossing it aside, may we suggest you dig it out of the waste-paper basket again and read (in the July and August issues, anyway) all about the very handy publications available merely by dropping a line (accompanied by the necessary db's of course) to the Secretary, W.I.C., 14 Atchison St., Crows Nest, N.S.W.

The publication of this issue of "A.R." will probably coincide with two important Conventions that are set down for the Six-Hour Day week-end—that is, the first week-end in October. Our friends of the Hunter Branch and the South-West Zone have been busily preparing for some time and we trust that both events will be blessed with good weather and large attendances. 73, Ivan 2AIM.

HUNTER BRANCH

Spring is sprung,
The grass is riz,
I wonder where
The signals is?

Yes, I wonder. Since the R.D. Contest hardly a thing has been heard on h.f. or v.h.f. bands. Where have all the operators gone? Deserted bands can do no good for the Amateur cause since it is a well known fact that band occupancy determines future planning and an I.T.U. Conference cannot be far away. To ensure that we still have our bands after this Conference there is a dual plan to be followed. Firstly, it is essential to use all the frequencies we have. And this applies equally to v.h.f. and h.f. allocations. That empty two megs. from 146 to 148 is just waiting for someone to use it. If we don't, someone else will. As for 146 f.m., use it as a calling frequency by all means, but not as a natter spot to the exclusion of other two metre operation. Top band, too, deserves more attention and is the ideal band for cross-town working. The Russians lost their 160 metre band because it was not used and very few countries have the 146-148 segment. Let's grab it while there is still time.

Now, secondly, we must have a representative at Geneva when the Conference is called. If your donation has not been made to the fund, then make it now—as next month or next year may be too late.

Local Amateurs were shocked to hear of the death of Vic 2AKP last month. Vic had been living in retirement at Balmoral on the lake and was a daily user of the 80 mx band. His son-in-law, Kevin 2ZKW, had also kindled in him an interest in v.h.f. and he was a listener on this band. Vic became an Amateur 30 years ago when he was a railway employee at Glen Innes and his work took him to many places in the State where he made use of his call. All who knew Vic will mourn his passing.

On the Eastern side of the lake where the grass grows greener than anywhere else, according to those whose domicile is there, big trouble is afoot. Belmont Bob has a broken down tx which defies all the experts to make it go. Added to this, his close neighbour, Milton, is awaiting his call sign. It appears that as soon as Bob's rig is ready he will have to draw up a roster of operating time. Two 150-watt tx's within 50 yards could cause some mutual interference perhaps. The solution is quite clear—it's the ducktalk for Bob. He tells me that he has a raffle ticket in a pair of ducks for Christmas so perhaps he'll do all right after all.

The Sept. meeting, the first one, was not as well attended as meetings of late, but those who didn't go really missed an outstanding lecture given by Warren O'Rourke, who is a technician for one of the large city firms. Warren brought along almost every type of carphone available and displayed them all on a large lecture bench in Room 6. The gear shown ranged from an early Pye Reporter to the very latest u.h.f. radiophone. While describing the equipment, Warren outlined the most common faults of each design and gave those present details of conversion of the popular phones for Amateur use. The lecture table was surrounded by interested operators for over an hour after the lecture and questions came from all angles. This was a fitting

OBITUARY

V. A. (VIC.) HOLMES, VK2AKP

We regret to record the death of Vic. Holmes, VK2AKP, who passed away towards the end of August. Vic. was one of our well known country members, and for many years had resided at Maitland.

It was while living in the Maitland district that he made a name both for himself and the Amateur movement in a time of serious emergency. During the 1949 floods on the North Coast, Vic. carried out emergency communication work of such a high order that he was given a letter of commendation by the N.S.W. Commissioner of Police.

Vic. is survived by his wife and family (Kev. Watson, VK2ZKW, being a son-in-law), and to them we offer the sympathy of all members of the N.S.W. Division.

GORDON WEYNTON, VK3XU

When Gordon Weynton passed away last month after an incurable illness of more than 2½ years, the ranks of the Amateur Service lost a man whose braveness extended beyond the call of duty and whose activities as a prisoner of war in Changi during World War II., whilst bringing untold pleasure to his fellow prisoners at the risk of his own life, were little known to those outside.

Gordon, as an accountant and business executive in civil life, rallied to the cause and enlisted in the ranks at the beginning of World War II. and rose to the rank of Sergeant with the 8th Division Signals when moved to Malaya. Whilst on service he rose to the rank of Lieutenant and was taken prisoner when Singapore fell in 1942.

His experience in Amateur Radio since the 1920s gave Gordon the urge to provide the prisoners at Sandaken Prison Camp news of events outside. At severe risk to his own life, and with the assistance of several other prisoners and outside sympathisers, an organised underground resistance movement was organised by which various pieces of equipment were obtained and put together as a radio receiver. Special chemical rectifiers were made from test tubes by which the camp's a.c. mains were converted to d.c. and the receiver commenced to provide news to the prisoners from the B.B.C. on 4th November, 1942.

Construction of a transmitter was commenced by which it was hoped to guide a rescue force to the camp. Discovery of some of the components put an end to this project and resulted in Gordon and others being subjected to torture and privation. The bravery of Gordon Weynton in these years could not begin to be understood but suffice it to say that the receiver continued to operate and its whereabouts was never divulged.

After being charged and tried, Gordon was sentenced to 10 years in gaol. He became so ill he was sent to Changi Hospital and after recovering was again sent to gaol where he remained until the end of the war. In October, 1946, he was sent as a witness to the Tokyo War Crimes Trials.

Despite experiences too foul to relate, Gordon settled back to civilian life again, becoming Mayor of Castlemaine (1949-51) whilst an Executive of the Castlemaine Woollen Mills and later holding executive positions with the Wangaratta Woollen Mills, an Oil Company and a couple of years prior to his death, with General Motors-Holden in Victoria.

Although a busy man, Gordon found time to take up an active post as Vice-President and Awards Manager of the Federal Executive of the W.I.A. He conducted these posts with the same zest and zeal as he applied to everything he did. His calm disposition and experienced deliberations were an asset to the Executive of the Wireless Institute of Australia of which he was a member for so many years and whose interests were always his interests.

It is with great sadness that we record the passing of Gordon Weynton before his due time—a man who did so much and suffered so much in order that others could live.

support for the vote of thanks moved by Frank 2ZFX.

In an attempt to beat Dave 2AWZ at his own game, your humble scribe made and described a d.f. aerial for 40 mx. This is a quite simple device but the originator of the design says it gives results which is all that matters. From reports it looks as if there will be some opposition in future fox hunts on 40 mx.

Just in case you get this copy early enough, please remember that there is **no meeting** in October. The next meeting will be on Nov. 4 when Gordon 2ZSG will give all the latest clues on converting Command receivers. Gordon has had a great deal of success with these units and his ideas for getting the most out of them are quite revolutionary in some respects. Don't miss this lecture—it's a beauty.

A visitor to the Branch last month was Andrew 1RD, who is well known to listeners to the morse practice service. He was accompanied by David 2BSC who is at present in Canberra. Also visiting on two occasions during the month were Gordon 2BGH and Steve 2ZGL. They provided plenty of activity on both 2 and 160 metres for the few hours they were in Newcastle. Stations testing on 2 mx f.m. are increasing and Phil 2TX and Doug 2ASA have both been heard at good strength in Newcastle. Now that 2WI has a strong enough signal to be heard locally, this is a good mark of reference.

By the time you read this, Phil will be on his way to London via the Bombay-London road. I wonder will he be working the DX? Bill 2XT is still going strong with DX mobile and now has over 108 countries. He says each succeeding one is ten times as hard to land! For those who are interested there is good news on v.h.f. aerials. If you'd like to know more, ask at the next meeting and hear all about it. And please don't forget that there is no meeting in October—the next one is on Friday, 4th Nov.—usual place, Room 6, Clegg Building, Newcastle Tech., at 8 p.m. See you there. 73, 2AKX.

CENTRAL COAST BRANCH

On August 19 the members of the Central Coast Branch enjoyed an evening with Dave 2AWZ, who gave a very lively and interesting talk on fox hunting. There were 27 present including some visitors from Newcastle and Sydney. Dave had his "Fox Box" with him and this contained some most unusual gadgets far removed from foxes, but still an important part of the game. One such item was an alarm clock (almost indispensable) and a cake of bon ami! He emphasised that it is necessary to understand the psychology of the fox, who gets up to all sorts of dodges to mislead the hunters. An accurate bearing with a compass before starting off is also very important. All in all, it was a very good evening and everyone appreciated Dave's efforts in travelling up from Sydney.

Ernie 2EH is off on an ocean voyage around the South Pacific in a few days and no doubt will return with a few choice anecdotes. Phil 2TX and his XYL, Rene, leave the middle of Sept. for an extended round the world tour. Highlight of their trip will be a bus tour from India to London. They expect to meet their travelling son, Mark, en route and have a few days with him. They have many interesting side trips planned and will be the envy of a good many people. Max, No. 1 son, will hold down the fort while they are away.

Don't forget the annual Field Day held at Gosford around the middle of February. A definite date will be announced later. 73, Mona 2AXS.

BLUE MOUNTAINS BRANCH

For the August monthly meeting at Lawson yours truly showed a half hour movie of various points of interest taken on my way home from the States. For a change it was very hard to get a word in with everybody present. The club h.f. antenna is still on the ground, but I understand that it could be up for the next meeting. No crack fellas. I know that conditions have not always been right.

Not much on the grape vine this month. Did hear that the Katoomba boys have found a supply of 6 mx net rocks. Well so much for our private line on 6 Trev. Allen 2ZFZ is on the air with a little more power, a 522 and a converter for receiver, and seems to be working more stations. A couple of more Z call stations are coming up on 2 mx soon, more info as it comes through. Seems like the old hill is starting to buzz just like the old days. Keep it up fellas.

I hear Jack 2NC is likely to be back on 2, so maybe with the right bait and tide you might catch him. Jack is also window shopping for s.s.b. gear, not sure what for, maybe s.s.b. on 432? Ken 2AVN and Graham 2ZGW have been active, watch it chaps. Derick 2ND straightened out 2WI on behalf of the Branch the other Sunday. Thanks Derick, and while I am on holidays trying to catch cotton picken flathead, Trev 2TM will be helping out with the Branch call back on Sundays. Well fellas the Scout Jamboree on the Air is just around the corner. I know you will assist again as in the past. Until the next meeting at Lawson, 73, Ron 2ADA.

— • • • —

VICTORIA

WESTERN ZONE

Once again there does not appear to be much activity in the Zone, however a few contacts are being made on v.h.f. and 20 mx. The usual stations appear on 3620 kc. at 1000 hrs. G.M.T. each Wednesday evening on the Western Zone net. We had the pleasure of hearing Merv 3AFO on the net frequency during the past month. Merv had moved to a new QTH at Wodonga some 12 months ago and very little had been heard of him.

The R.D. Contest proved to be an enjoyable week-end with most Zone members participating. At least three members made one hundred plus contacts. John 3AFU, Harry 3ZX active on s.s.b. Chas 3IB active on c.w., Bill 3AKW, Bert 3EF and Herb 3NN being heard on a.m.

Alex 3ADA, who is now a student at a Melbourne university, joined the net during the term holidays as a visitor to 3ZX's QTH. This proved to be the first phone contact Alex had made. We look forward to hearing you again Alex. During the past few weeks your scribe has had the pleasure of visiting a number of Western Zone shacks, namely Bob 3ARM and Herb 3NN. It was interesting to note how Herb 3NN and son Garry generate an s.s.b. signal on 2 mx and it certainly works f.b. 73, Harry 3ZX.

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SOUTH AUSTRALIA

The monthly general meeting of the VK5 Division was held in the club rooms on the fourth Tuesday in August to a standing room gathering only. In fairness to my legion of dissatisfied readers in VK4 and VK6, I feel that I should point out that the reason for the standing room only was really due to the fact that the caretaker, for some reason or other, only put out half the usual number of chairs, and therefore it was a case of stand or go home.

Very little business of any importance was transacted, although I must refer to the fact that among the welcome visitors was Marge ZL3TC squired by that Gay Lothario, Gilbert 5GX, who happened to be visiting her sister in VK5 and decided to drop into the meeting just to see what makes VK5 tick.

The meeting took the form of a display of members' gear and the following members rallied around and gave a short description of their gear and assisted in the display. Barrey 5ZAU, a 6 mx transistorised tx; Curl 5CL, a dummy load built into an intriguing container; Ron 5KS, an s.s.b. tx (his third to date); Trevor 5ZTM, a 2 and 6 mx v.f.o.; Rob 5RG, a two terminal oscillator; Bob 5ZDX, two regulated power supplies; Rex 5DO, a hybrid rx; Heinz 5GK, a protected transistor power supply; Eric 5ZEJ, a 2 mx converter; Trevor 5ZIS, a 146 Mc. f.m. transceiver; and Geoff 5TY, a communication 10 rx.

The awards were for three sections, v.h.f., instruments, and general. The v.h.f. award went to Barrey 5ZAU, the instruments went to Bob 5ZDX, and as there were only two entries in the general award, and both of these were Council members, Ron 5KS and Geoff 5TY, and thus not permitted to compete, there was no general award. To these members and all who made the display possible, goes the thanks of all present for an enjoyable and interesting evening.

I was a little upset at not being able to describe the entry of Geoff 5TY, mainly be-

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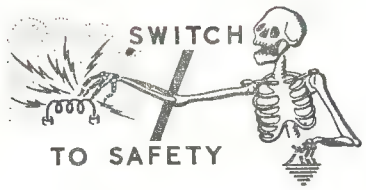

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805	,, ...	12/6 ,,
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5	12	30c	50	450	$1.35
5	18	35c	64	6	35c
8	10	30c	64	18	35c
8	15	30c	100	3	35c
8	350	48c	100	6	35c
8	525	58c	100	12	35c
10	3	30c	100	25	50c
10	6	30c	100	50	72c
10	15	35c	100	100	75c
10	25	35c	100	200 Can ..	$1.05
16	10	35c	100	300	$1.63
16	300	50c	100	350 Can ..	$1.60
16	525	75c	125	3	35c
20	200	62c	150	150	75c
24	350	65c	200	25	65c
24	500	97c	200	50	90c
25	3	32c	250	3	50c
25	6	35c	250	6	55c
25	12	35c	250	16	55c
25	18	35c	250	25	75c
25	25	35c	250	50	95c
25	50	45c	500	12D	50c
25	300	62c	500	25	88c
25	600	98c	500	50	$1.25
30	6	35c	1000	6	92c
30	12	35c	1000	12	$1.05
32	350	70c	1000	25	$1.43
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cause during his description of the rx he said that he had kept an account of just how much the project had cost him and swore the meeting to secrecy, just for safety sakes. Naturally I can't report any further, bound as I am to secrecy, but if by any strange chance Christine should be reading this, I would suggest that she go out immediately and buy that half dozen or so hats and shoes, plus a couple of dresses and you-know whats, just to even up the score. Whatever you do, my dear, find another hiding place for the milk money, etc. I think he has found the present one!

A newly re-joined member was present at the meeting in Joe Vardon, a Council member and Treasurer during the 1919-1930 period, who has been bitten again by the bug and is trying to get his licence back. Is talking hopefully of a little rig on 40 mx ere long. Welcome back OM.

Curl 5CL brought the house down with his short and to the point explanation of his dummy load on display. He walked to the table, picked up the "mystery container" and said: "This is a tin with some resistors in it, a co-ax connector at one end, sealed at the other. I connect it to my tx and no noises or such can get out on to the air. Thank you." The cheers and applause could be heard for miles. Oh that some others would copy his device! (And be as brief—with their notes!—Editor.)

Bob 5ZDX was another one to rock the meeting. When queried as to his statement that he was using OA210s in his two regulated power supplies and passing an amp., simply replied that they had been up-rated recently to pass 750 mA., and remained poker-faced despite the uproar!

Ron 5KS disappointed me somewhat. He usually points proudly to his s.s.b. rig on display and shows something from his XYL's kitchen utensils which he has cunningly utilised in the set-up. This time, however, nothing was mentioned. Has she put on a buck, or have you lost your nerve, Ron?

The judges at the meeting for the awards were Brian 5ZNK, Neil 5WN and Phil 5NN. Unusual, but no jeers or cheers greeted their decisions so can only suppose they gave every satisfaction. I was busy at the time or else I would have jeered just from principle!

Nobody could ever accuse me of being a gossip, nobody could accuse me of being a "nark," or even of cramping anybody's style, but did you copy the number that Phil 5NN exchanged with Brenda 3KT in the R.D. Contest? Well, if you did not, it was 59-288. How low can he get? Did you tell John 3AFU about it, Brenda? 88s indeed.

According to my reckoning, Rob 5RG has been mixed up in this business of "The Thing" since about 1955, but was recently noticed back on 7 Mc. using the more conventional form of a.m. Can it be that my preaching of the gospel has at last paid off? I doubt it!

My paragraph in the July issue of the "mag" re my figuring in the R.D. Contest receiving log sheet sample accused of contacting 6RU using "The Thing" brought forth a letter from a well wisher—I think—who pointed out that not only was I libelled, but I was also cheated out of an extra three points in the score, anybody else would have been listed as five points instead of two. How can I win?

(What's this MY spies tell me about PanSy being heard on s.s.b.?—Editor)

Anyway, I did not enter the R.D. Contest this year, discretion proving the better part of valour. I had been carrying a heavy cold all the week, but decided to rise from my bed of sickness and valiantly line up for punishment late in the afternoon of the Sunday. Unfortunately I stubbed my toe on the end of the bed and when the commotion had died down and the air cleared somewhat, my better nine-tenths appeared from nowhere, and with that particular glint in her third eye that I have come to know so well, sweetly suggested that I get back to bed, contest or no contest. I normally am a brave and valiant creature, but going on about forty years of experience, I disappeared below the blankets and did not surface for about an hour or so, with the R.D. Contest being just a memory. This is the first one that I have missed, but at least I live to fight again—in the contest I mean.

Cec 5CD is usually away during the week days and appears on the bands only at week-ends, using an 813 and about 140 watts. A keen mobileer, I had the pleasure of renewing acquaintance with him whilst I was at Oakbank last Easter, but I don't think he was using the 813 in his mobile set-up!

Mixed up in the hash-cum-overseas broadcasts, etc., to be found at night on 7 Mc., 5MM and 5TL were heard talking to a VK4 recently, who by the sound of his voice, was of W origin. The said VK4 commented, in a somewhat surprised tone of voice, on the amount of 7 Mc. being used by other than Amateurs. After the surprise usually comes the frustration.

5ZF reports having worked a VK0 in the R.D. Contest. Len reckons it was quite a battle seeing as he did it on 3.5 Mc. This would be the understatement of the week I would think.

Vern 5VB, "The Admiral" to you, recently spent quite a time looking for trouble in his s.s.b.—horrible word—rig, and eventually found that apparently the ducks had been eating steel wool, judging by the number of strands he found inside. Putting two and three together and getting six, and remembering just where the rig came from, I can only assume that the XYL of Ron 5KS is missing on a packet of steel wool! He is always boasting of how he borrows his XYL's kitchen utensils for his experiments.

Now I know that I am an old fuddy-duddy, I also know that I always seem to get hold of the wrong end of the stick, but an emphatic statement recently in the magazine made it quite clear that G.M.T. time would be used in all W.I.A. contests until such a time as it was revoked at a convention. I noticed with some surprise at the meeting that our crabby Federal Councillor, Geoff 5TY, announced that the Ross Hull Contest would be OK for Australian time on the log sheets. May I be so rude as to ask why? And also what is the difference between the Ross Hull and the Remembrance Day. Please bear with me if I have misunderstood, possibly it is my age creeping in.

Two new W.I.C.E.N. appointments to hand. Mr. T. Slater, 5ZIS, as assistant co-ordinator, and Mr. B. Roberts, 5ZNK, as technical officer. W.I.C.E.N. still marching forward with increased numbers, in fact I notice in the monthly rosters that no name appears more than once, which is sufficient to show the present enthusiasm. I should probably say that this is due in no small measure to the drive behind the co-ordinator, Geoff 5TY, but I won't because I am tired of mentioning his name in these notes. By the way, he will represent the W.I.A. (S.A. Division) at the E.F.S. Conference to be held at the Police Headquarters in Sept. With a bit of luck they might get enough on him to never let him out, if they need any help I will be only too pleased to come clean with what I know. Fiddling with the cookie jar for one thing. What about laying a charge, Christine?

Two well known members of the VK5 fraternity, both said to be allergic to postage stamps and envelopes, were heard indulging in a c.w. contact the other night at about 9.30 p.m. Both these gentlemen were overcome with pride a couple of days later to receive a QSL card from a well known source reminding them of the need for call signs every five minutes or so. Their names are withheld to protect the guilty!

Comps 5EF went all computerish recently and came up with the information that despite —or because of—the enormous score that Tubby 5NO turned in at the 1965 R.D. Contest, VK5 would still have won. Let's hope that it turns out that way this year, because Tubby certainly won't be here for this year's R.D.— unless he works with an ON call sign.

The old rivalry between Jim 5FO and Harry 5MY was upset a bit because Jim was able to get about 45 contacts logged up before Harry got into his stride. Harry reckoned that 45 contacts start in the R.D. Contest was too much leeway to make up.

George 5CV when last heard of was in the direction of Kingoonya and Mount Eba, well on his way to Alice Springs or somewhere in that area. Reports have it that he was made so welcome at Woomera by the boys of 5WC that his progress was retarded somewhat. He seemed to think his time had been well spent however. Another "Blue Hills" George?

Joe 5JT is well set up for the higher frequencies these days with his Mosley beam, but is apparently having a bit of difficulty with 80 mx. Uncle Tom's (5TL) bottle inductance is in the process of being test runned, but it is too early as yet to assess results. Tom claims no patent to the idea, but gives credit to a VK2 for its introduction and says that the proof of the pudding, etc., etc., is enough.

Brian 5CA again missing from the general meeting, but the excuse was a good one. He was in the throes of producing the next issue of the VK5 Journal, and was trying to sort out the hundreds of contributions sent in by members for the said Journal. Get the message—hundreds of contributions from members —what about it, chaps?

Fred 5MA, until recently of Renmark, is now living in the area of no QRM, see Geoff 5TY for this area, and has not as yet been heard on the air. Nice to hear some news concerning you Fred, long time no hear. He used to be a regular correspondent from Renmark some years ago. Welcome back OM.

Have you been keeping an eye on the VK6 notes these days? Well, I have, and I cannot help but see a possible rival, both with his sense of humor and the length of his notes. This, of course, going on my experience, will be the only pat on the back he is ever likely to receive from any one, but never fear, Ross 6DA, I will scratch your back if you will scratch mine, thus forming an enduring mutual admiration society. Joking aside, the VK6 notes make good reading, and I am the first to admit it. Even if it hurts! 73, de 5PS—PanSy to you.

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WESTERN AUSTRALIA

Yo ho ho and a bottle of spa water, it's off we go to seek for buried whatsisname or something. No, not us, but Doc 6AQ and some of his students and staff recently took off for those well known islands off the Geraldton coast. Naturally no modern expedition is complete without radio communication and this one was no exception as Doc was well equipped to operate on 40 and 80 mx. Their final refuge was one of the small islands of the Mangrove group. Weather was not quite what it should have been and after a couple of rough days and nights it was the popular consensus that the island be renamed Geometric island because everything finished up on an angle. The antenna pole was at 45 degrees and even the rain was coming in on a horizontal plane. However, as the weather moderated, the boys were able to adjourn to neighbouring islands to investigate vegetation, marine biology, bird life, etc. Fish were in abundant supply and the group certainly did themselves proud as far as meals were concerned. In fact they were well catered for in every respect as their number included two medical men, a priest, a crayboat skipper and a professional skindiver. To cap it all off, Doc reported that conditions from a Ham Radio point of view were ideal.

The portable bug seems to be biting a number of our Hams. Bernie 6KJ and son Kim (a communications engineering student) also took unto themselves mobile gear and traversed a good deal of the State from home QTH at Albany to Carnarvon and the Murchison River.

Also heard with a fine signal on 40 mx a.m. from various country centres was a visitor from VK3 land. Welcome to VK6, Bob 3AHF/Portable 6. The roads were not always kind to Bob's caravan and rig, however he seems to have overcome most of the difficulties encountered and still find time for a spot of Ham Radio.

Lionel 6LM, who I recently reported as being on long service leave, has put his time to good purpose, constructing a capacitance meter, two-tube phasing type rig, and a helical whip as well as checking his portable equipment.

Paid a visit to Waroona the other day and caught Bob 6RG red-handed, right in the act of—yes, you've guessed it—pulling his gear to bits, or as he termed it, a necessary modification. Spent a couple of very pleasant hours yarning with Bob and learning quite a lot in the process.

Bill 6WY tells me that Yanks are still plentiful on 20 mx. His X beam seems to be functioning well despite its proximity to salt air and its devastating effects. Incidentally, Bill has been firing up an old No. 19 on occasions from the Moore River.

Heard Brian 6VW recently giving voice on some piece of portable gear acquired from one of the Division's disposal sales. Nearly time you modulated that "suitcase Special" of yours Brian.

Another of my spies received instant promotion to the rank of bird watcher for the startling item of news that one of our leading s.w. listeners, Peter Drew, has won the lottery and joined the ranks of national servicemen for two years. Good luck, Peter, and I hope the experience will be beneficial to you. I understand that rather than let his receiver gather cobwebs, Peter has loaned it to another very keen s.w.l. in Harry Price, for the "duration." Judging by the number of stations logged by Harry during the R.D. Contest, its loan was fully justified.

Another who apparently could not resist the lure of our sunny (?) shores was George 2AGO. Nice to see you at our meeting OM, hope that your stay in VK6 was a pleasant one.

Our favourite news reader, Bob 6BE, reports that the news broadcasts are maintaining good coverage, and who can deny this when, after a recent broadcast on 20 mx, Bob called for reports and back came a G station.

Once again the R.D. Contest brought to light some of the well-nigh forgotten call signs, but to save some people asking embarrassing questions, I will not mention any of them by name —unless they forget to submit a log. It appears to me that once again there were some fabulous scores attained in all States, and not all by sideband stations either! I wonder which State will run out winners on this occasion? As one Eastern State's gentleman put it to me shortly before the thing

started, "VK6 should win, after all you guys are marking the logs"—now there's an idea! Relax, Contest Committee, we know that you are above reproach in these matters and may I lead a resounding cheer for a job well done?

Talking of little heard of call signs, which I promised not to do but I will, reminds me of John 6NJ of far off Yornup. Why are you hiding your light under a bushel OM? If I hadn't read PanSy's column I would never have found out about your well deserved award for that fine series of articles on the History of Radio. However, I suspect that some extra studies may be instrumental in keeping you virtually off the air.

Reports to hand indicate that John 6IP may have faint leanings toward X Beams. True John?

Len 6LG, Bob 6RG and Aub 6XY appear to be holding the fort on 80 mx with occasional bursts of activity from other stations.

After months of silence, Col 6CJ made an appearance on the bands with a new rig. As another was heard to remark, it just didn't sound like Col, however it is probably so long since we heard his charming tones that they are growing dim in the memory.

One of my fans (yes, I actually have two), complained that I am always writing about the same few people. While this is virtually true I hasten to point out that the ones I repeatedly mention are at least **active**. Please do not hasten to heave a brick through the window of your local cop shop to get into the act, however if you possess information which you think should become general knowledge, please drop me a line.

For some inexplicable reason I have no v.h.f. scandal to pass on this month, but with school holidays looming up again something is bound to pop. The more optimistic types are predicting an early JA break through on 6 mx. Hope this is true, as it may add stimulus to a slumbering area.

It is pleasing to note a number of Z calls showing signs of interest in the proposed Morse classes to be run by the Division.

ERRATUM

In the W.I.A. advertisement on page 8 of this issue the subscription rate to "73" Magazine is incorrectly shown. The price should be $3.50.

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S. T. Clark. 26 Bellevue Ave.. Rosanna, N.22. Vic.

Geraldton is still on the map Ham Radio-wise (how's that for a word), mainly due to the fine signal radiated by Noel 6MF—could easily be mistaken for that other rig up on the North-West Cape.

Steve 6SG, of Bunbury, was wrestling manfully with a couple of unruly 6146s when I contacted him the other day so at least I can talk to one bloke down there even if I can't catch up with Les 6WL.

Just before I suffer an attack of "typiste's toes," a quick reminder about the Jamboree-on-the-Air, and please consult your Contest Calender. 73, Ross 6DA.

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TASMANIA

Here it is nearly holiday time once again, three parts of the year are gone and the better weather is on the way (we hope). Also, of course, the v.h.f. DX season, quite a few locals are increasing power and/or re-building in anticipation of a good season.

The July exams saw quite a few members sitting for various sections of the A.O.C.P. requirements. Winston (formally 7ZAP) and Mike (previously 7ZAV) were two of the locals who passed the c.w. and now sport the full calls of 7WH, 7FB respectively; also Les Cooper who has been an associate for some years is now 7LS.

This year's R.D. saw excellent participation in all Divisions, and in this one particularly, both on h.f. and v.h.f. There appeared to me to be a much better spirit existing this year, far more friendly QSOs, it was good to hear, and when you think there are a lot of the general public who take a listen on R.D. weekend, it helps to make them realise that "an Amateur is a gentleman."

Our congrats must go to Sam 7SM who had 451 contacts; Den 7DK with 423 contacts, plus v.h.f. operation; and Brian 7TX with 342 contacts. The average of our top six should be in excess of last year. Hope its a good enough score to have won the trophy.

Don't forget next month is Hamfest month. The last week-end of November (26-27) at the usual spot at Campbell Town. Hope you'll make the effort to come at least for the Sunday, if not for Saturday night as well, for the barbecue and monster camp fire.

Our Sept. meeting at Hdq. Zone saw a clearance of disposals junk. Things had reached the stage when we could not comfortably get in the disposals room. Space had to be found for equipment of a better class to be housed so out went the goods which have been hanging fire for quite a long time.

7WI is now being re-broadcast on Sunday morning on 432 Mc. band by John 7ZJG and four or five other members are consequently in various stages of building gear for that band.

Don't know how many Tasmanians went on board the H.M.A.S. Hobart when she paid us a visit, but I did. I think someone must have recognised the W.I.A. badge on my coat, because the radio room was securely locked, but she certainly bristled with antennae of all sorts.

The Departmental exams in October should see about seven or eight more members sitting for their c.w. Won't be long before there is a shortage of Z calls if this keeps up. Good luck, chaps. 73, Geoff 7ZAS.

HAMADS

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ATTENTION! Shack sell out. (1) Brand new "Woden" UM3, 120w., potted modulation transformer, $15; A & R IT583 driver transformer, $4.50 (originally purchased to construct "A.R." Class B modulator). (2) Used, excellent condition: C core 750 mA. 23 ohm d.c. resistance choke, $8. Power Transformers: (a) 600v.-0-600v. at 400 mA., 5v. at 4a. x 2, 6.3v. at 3a. x 2, $10; (b) 565v.-0-565v. at 250 mA., 5v. at 4a., 6.3v. at 3a. x 2, $6. P. G. M. Bruer, VK5ZGX, 95 Church Terrace, Walkerville, South Australia. Phone 65-1363.

FOR SALE: AVO Precision Sig. Gen., 50 Kc. to 80 Mc., with instruction book. Taylor 45C Mutual Conductance Valve Tester, with calibrations and instruction book. Both above items in new condition, hardly used. **Tx**, Geloso v.f.o. and 807 final, control panel, indicator lights, fuses, etc. Power Supply: 600-0-600v., 250 mA., 6.3v., 5v. (Hilco); two supplies of 400-0-400v., 120 mA., 6.3v., 5v.; all relay operated. Valves: 829B, 832, RK34 (300 Mc.), 809, 807, 805, 6AG6, 802, 866, variety of metal and glass receiving types. Transmitter section of SCR522 (v.h.f.). Variety of coils with silver plated wire on ceramic formers, 1¼ and 2½ inch diam. (some rotating types with roller contact). Transmitting condensers, high voltage, split-stator and single, welded frames, various capacities. Various power transformers. Porcelain sockets for 832 or 829B type valves. Large assortment of odds and ends, relays, key switches, condensers, resistors, etc., suitable for hobbyists or instructional purposes. Gen. Motor, 12v. input, 250v. output at 60-70 mA. I.F.F. Gen. Motor converted to 230v. a.c., suit beam rotation. Best offer for major items. Odds and ends available FREE to anyone who can put them to good use in the interests of Ham Radio (too much to mail). J. Reid, VK3AJR, 601 Barkly St., Ballarat, Vic. Phone 2-2041.

FOR SALE: Galaxy V. Transceiver with a.c. power supply and remote v.f.o. (also Galaxy), $600 cash, very seldom used, 100 per cent. condx. Will air freight anywhere. Bendix Freq. Meter with power supply, $80, also 100 per cent. condition. Grundig TK25 twin track Tape Recorder, $50. A.W.A. V.t.v.m. with d.c. and r.f. probes, $40. VK4JA, J. T. Marston, 187 Aberdeen Pde., Boondall, Brisbane, Qld.

FOR SALE: Six Metre Transmitter, 25w., 6146 final, v.f.o. built-in, also matching Receiver, 7-11 Mc., b.f.o., a.v.c., xtal calibrator, etc. Also power supply to suit, 300v. 150 mA., 6.3v. fils. 6 mx and 2 mx Converter on one chassis, own power supply, tunes 7-11 Mc. 522 Transmitter, 2 metres plus power supply. Also 4 over 4 Channel Master 2 Metre Beam. All units working. Offers to P.O. Box 206, Liverpool, N.S.W.

FOR SALE: Swan SW350, new, never used. Latest model. $500. 35 Reading Road, Brighton, Sydney, N.S.W.

FOR SALE: Transmitter AN-ART13 autotune, uses 813 and of course is a.m. modulated with 811. Complete with power supply delivering 1100v. at 500 mA., 400v. at 20 mA., 28v. d.c. at 10 amps. Best offer over $120; will get some spares included. Also, complete manual, $12. Sundries including two Simpson 25-0-25 microamp. Meters, new, $12 ea. BC221 with book but less xtal, $60. BC733 Receiver, $10. T.v. Chassis, less pix tube and pwr. tranny, $8. Phone 437-1811. Williams, VK3IZ, Ingrams Rd., Research, Vic.

FOR SALE: Type S Power Supply, 0.5 amp. at 500 volts, 12 volts a.c. and d.c., 300 volts d.c., $24. Type 3 Mark II. Transmitter and receiver, $50. VK3ARP. Phone 85-1184.

FOR SALE: 50 ft. crank-up steel tower with hinge base. Excellent condition. $50. R. Hobby, VK3ACI, 18 Cavalier St., East Doncaster, Vic. Telephone 842-2064.

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WANTED: Some AR7 Coil Boxes, good mechanical condition. Prices and particulars to R. W. Martin (VK2AHI), P.O. Box 143, Casino, N.S.W.

WANTED TO BUY or have made. Small Transistor Tx/Rx or TRx to work 146 f.m. Particulars, Box 23, Kurri, N.S.W.

WANTED: To buy, rent or borrow. Handbook for 122 Set. R. N. Fenton, 52 Steven St., Hurstbridge, Vic. VK3ARF. Phone 718-2284.

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WANTED TO SELL: One Heathkit SB10 Sideband Adaptor, $70, with 813 Linear $90 complete. Two H.R.O. Receivers, one bandspread, the other general coverage, $70 each. One BC221 $70. One G.R. Output Power Meter (audio), type 783A, milliwatts to 100 watts, precision lab. Meter, $90. C. J. Manning, VK3CJ, P.O. Box 400, Orbost, Vic.

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★ **3J160E HIGH POWER TRIODES**
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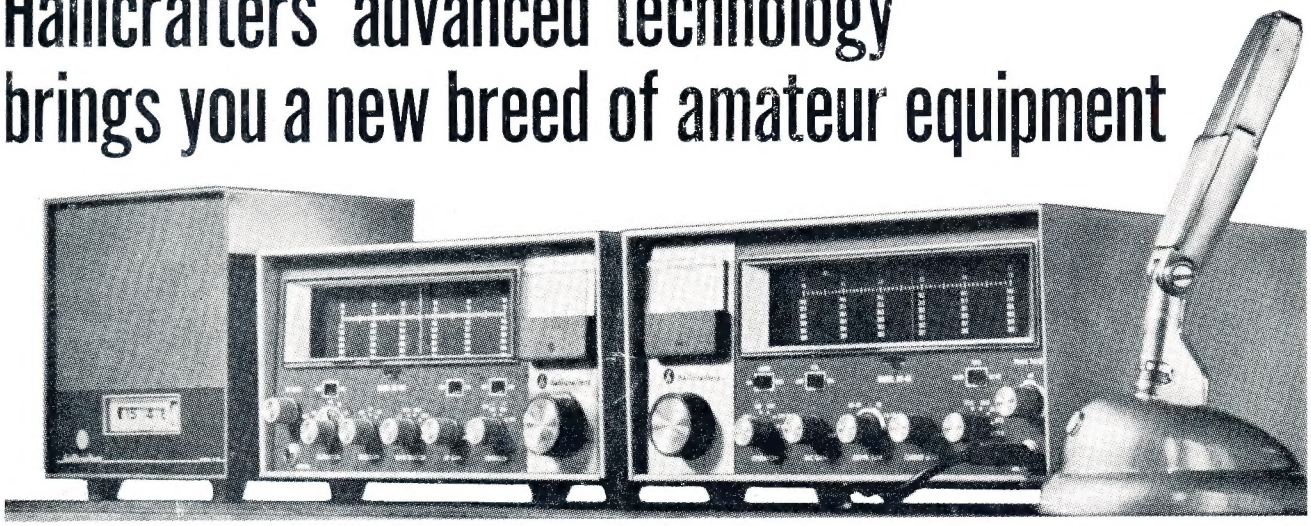

SX-146 Receiver

This is an Amateur band receiver of advanced design employing a single conversion signal path and pre-mixed oscillator chain to assure high order frequency stability and freedom from adjacent channel cross-modulation products. The SX-146 employs a high frequency quartz crystal filter and has provision for installation of two more crystal filters. The receiver may also be used from 2 to 30 Mc., with the exception of a narrow gap at 9.0 Mc., with the connection of auxiliary oscillators. The highly stable conversion oscillator chain may be used for transceiver operation of matching HT-46 transmitter.

FREQUENCY BANDS: 3.5-4.0, 7.0-7.5, 14.0-14.5, 21.0-21.5, 28.0-28.05, 28.5-29.0, 29.0-29.5, 29.5 30.0 Mc. (28.0 to 28.5, 29.0 to 30.0 requires extra crystals at user's option.)

SENSITIVITY: Better than 1 μV. for 20 db. S/N.

TUBES AND FUNCITIONS: 6JD6 r.f. amplifier; 12AT7 signal mixer and cathode follower; (2) 6AU6A 9 Mc. i.f. amplifier; 12AT7 a.m. detector—a.v.c. rectifier—product detector; 12AT7 u.s.b.-l.s.b. crystal oscillators; 6GW8 audio amplifier and audio output; 6BA6 variable frequency oscillator; 6EA8 crystal heterodyne oscillator and pre-mixer; plus diode power supply rectifier, a.n.l. diode and a.v.c. gates diode; *6AU6A 100 kc. crystal calibrator oscillator; *harmonic generator diode.

I.F. SELECTIVITY: Uses a 6-pole crystal filter to obtain a nose-to-skirt ratio better than 1 to 1.8.

PHYSICAL DATA: Size, 5⅞ x 13⅛ x 11 inches. Shipping weight, 20 lbs.

FRONT PANEL CONTROLS: Frequency—Power off, c.w.-upper-lower and a.m.; audio gain; band selector—3.5, 7.0, 14, 21.0, 28.0, 28.5, 29.0, 29.5; selectivity—0.5, 2.1, 5.0 kc. (0.5 and 5.0 kc. filters optional extra); pre-selector; r.f. gain; a.v.c. on-off; cal. on-off; a.n.l. on-off; phone set jack; Smiter.

REAR CHASSIS: S-meter zero adjust; internal-external oscillator switch slave oscillator output; external oscillator input; antenna socket; speaker, ground and mute terminals; grounding stud; a.c. power cord.

POWER REQUIREMENTS: 105/125 volt—50/60 cycle a.c.—55 watts. * Part of HA-19 calibrator.

Amateur net, $450.00

Optional crystal filters: 0.5 kc., 5.0 kc., available.

MODEL HA-19 plug-in 100 kc. quartz calibrator available as accessory.

HT-46 5-Band Transmitter

All new from the ground up! Here's the "new breed" transmitter that matches your SX-146 . . . works independently or may be interconnected for transceiver operation.

FEATURES: 180 watts p.e.p. input on s.s.b.; 150 watts on c.w.; frequency control independent or slaved to SX-146 receiver; upper or lower sideband via 9 Mc. quartz filter; built-in power supply; press-to-talk or optional plug-in v.o.x.; grid block keying for c.w.

FREQUENCY COVERAGE: 3.5-4.0, 7.0-7.5, 14.0-14.5, 21.0-21.5 Mc. and 28-30 Mc. in four 500-kc. steps. Crystal supplied for 28.5-29.0 Mc. coverage. Other plug-in crystals at user's option.

TUBES: 6BA6 v.f.o.; 6EA8 heterodyne crystal oscillator and mixer; 12AT7 carrier oscillator-third audio; 12AT7 mic. amplifier; 6EA8 9 Mc. i.f. amplifier and a.a.l.c.; 6AH6 mixer; 12BY7 driver; 6HF5 power amplifier; OA2 reg.

FRONT PANEL CONTROLS: Frequency tuning; operation-off; standby, u.s.b., l.s.b., c.w.-tune, standy l.s.b., u.s.b.; microphone gain; driver tune; carrier level; band selector; final tune; v.f.o. selector—transmitter-receiver; dial cal.; calibrate off-on; meter MA-RFO.

REAR APRON FUNCTIONS: A.c. cord; ground lug; fuse; key jack; v.o.x. accessory socket; antenna jack; receiver input (for transceiver); 11-pin control socket; bias adjust.

PHYSICAL DATA: Size, 5⅞ x 13⅛ x 11 inches. Shipping weight, 26½ lbs.

Amateur net, $507.00

HA-16 Vox Adaptor.

W.F.S. ELECTRONICS SUPPLY CO.
227 Victoria Road, Rydalmere, N.S.W. 638-1715

ATLANTIC RADIO
36 Oxford St., Woollahra, N.S.W. 31-7811